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OFFICE OF EDUCATION

IN THIS ISSUE

School Building Authorities

ELMER C. DEERING

Area Vocational Education

WALTER M. ARNOLD

January 1960

Office Hours

FIFTY STATE DEPARTMENTS of education, nearly 2,000 colleges and universities, 45,000 school districts—these are the chief respondents to Office of Education questionnaires. They are the ones who give the data that add up to the Federal Government's figures on education—how much money, how many degrees, how many children, teachers, and classrooms.

If they chose, the schools and colleges and State departments could toss these questionnaires into the wastebasket and forget them; no law compels them. Years ago this was what many of them did; how many, no one knows, for the old records count only the replies, ignoring the silences. But in recent years the records have counted both, and we know the rates of response. They show something amazing—that now almost everyone who gets a questionnaire from the Office of Education fills it in and sends it back! The Office has found it can expect at least a 90-percent response; ever so often it has the heady excitement of a full 100.

When we consider this cooperation so freely given, we marvel and are grateful. But to the educators in the Office, who are grateful too, it is no marvel at all. They find it perfectly explicable, the fruit of a great stirring and growing in American education.

This growing, they say, is a complex thing. Partly it is the professionalization of school administrators, who are setting and meeting new high standards of service. Partly it is the lift of Federal support for the gathering of information, expressed in a larger staff of specialists in the Office of Education and in money to help the States. Partly it is the nationwide campaign for standardizing the terms used in the fact-gathering process. Partly—and we suspect this is the subtle force behind all the rest—it is the realization rising in the minds of the American people that unless each community contributes its part of the picture, there will never be a whole picture to see.

—T.C.

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE • ARTHUR S. FLEMMING, *Secretary*

OFFICE OF EDUCATION . . . LAWRENCE G. DERTHICK, *Commissioner*

CARROLL B. HANSON, *Director, Publications Services*

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THEODORA E. CARLSON
Editor

ADA JANE KELLY
Associate Editor

CATHERINE P. WILLIAMS
Assistant to the Editor

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Brief. . . . . EDUCATION AND GOVERNMENT Reports . . . . . .

The world and the young

THE 1960 White House Conference on Children and Youth has issued a preliminary program for the 7,000 representatives of State governments, the Council of National Organizations, and the Federal Government who will attend the March 27–April 2 meeting in Washington, D.C. According to the program, the Conference will consider the problems of children and youth from two approaches, each appropriately named: "The World Around the Young" will examine environmental influences on the young; the other, "The Young in the World," will survey the current scene from a personal and individual standpoint.

After its opening session, the Conference will break into five concurrent theme assemblies on each of three mornings to appraise ideas and values in a changing world, measure the impact of today's economic, social, and cultural factors on children and youth, and consider the effects of science, technology, population pressures, and world events on young people and how they are adapting to them. The assemblies will be followed by 18 concurrent forums meeting in 210 workgroups, Forums 1–9, on "The World Around the Young" and Forums 10–18 on "The Young in the World." On March 31 the forums will vote on recommendations, and on April 1 the composite recommendations will be presented to a general assembly. The Conference will close with a meeting of the President's National Committee.

The 1960 White House Conference on Children and Youth—the Golden Anniversary Conference—is the sixth decennial meeting called by the White House since 1909 to consider the welfare of the Nation's young people. President Eisenhower is its Honorary Chairman; Arthur S. Flemming, Secretary of Health, Education, and Welfare, Honorary Vice Chairman. Mrs. Rollin Brown, past president of the National Congress of Parents and Teachers, is chairman, and Ephraim R. Gomberg, executive director. An article on the Conference by Mr. Gomberg appears in the October 1959 *School Life*.

Stronger schools

AMERICAN Education Week, November 6–12, 1960, will be the 40th annual salute to American education sponsored by the American Legion, the National Congress of Parents and Teachers, the National Education Association, and the Office of Education. For this first year of a new decade, the sponsors have chosen, as a general theme, "Strengthening Schools for the 60's" and have selected for each day of the week a particular point to emphasize:

November 6—Serious Students—Stronger Schools
November 7—Interested Parents—Stronger Schools
November 8—Able Board Members—Stronger Schools
November 9—Quality Teachers—Stronger Schools
November 10—Ample Funds—Stronger Schools
November 11—Challenging Curriculums—Stronger Schools
November 12—Lifelong Learners—Stronger Schools

As we move further into 1960, *School Life* will publish other announcements about the Week.

First overseas language institute

STANFORD University will conduct a summer foreign language institute in Germany for 86 secondary school teachers of German, June 20 to August 19, 1960. It will be the first institute under the National Defense Education Act to be conducted outside of the United States and the only one in a foreign country in 1960. F. W. Strothmann, executive head of the university's Department of Modern European Languages, will direct it. Applicants who studied German at an NDEA summer institute in 1959 will be considered first.

The success of Stanford's institute will be a factor in determining whether other NDEA summer language institutes will be held overseas.

For information on institutes that will be held in the United States next summer, see pages 24–25.

Rural library services

ALL but 10 percent of the nearly 28 million Americans who were without library services in 1956 were living in rural areas. Though rural Americans are nearly 50 years behind city people in the library services they get, no rural reader need live without books for we know how to bring them to him. The gap between city and country can be closed quickly, and *is* being closed. For instance, more than 900 rural counties now have bookmobile service. With the help of the Library Services Act, passed in

1956, States are bringing library services to small and remote communities all over the Nation.

Rural people themselves can do much to close the gap by making their wants known to public officials. To guide them, the Department of Agriculture has issued the bulletin *Library Service for Rural People*, prepared for it by the American Library Association with the advice of the Library Services Branch of the Office of Education. The publication describes a public library system in a rural area and tells how to obtain one; it also carries a directory of State and Territorial library extension agencies. It sells for 15 cents from the Superintendent of Documents, Government Printing Office, Washington 25, D.C.

The weatherman can be a woman

ONE answer to the manpower shortage in science is womanpower. With education and training women can become chemists, physicists, geologists, astronomers, or meteorologists. In many instances, the only barrier in the way to their becoming scientists is their own idea that scientific work is "unfeminine."

To encourage young women to become scientists and to give them information on what scientific careers are like and what they must do to prepare for them, the Women's Bureau of the Department of Labor has published Bulletin 270, *Careers for Women in the Physical Sciences*, and a companion leaflet, *Science Futures for Girls*. The bulletin covers such topics as science and womanpower, preparing for a scientific career, and the requirements of chemistry, physics, geology, astronomy, and meteorology. The leaflet is a résumé of how women can prepare themselves for careers in science. The former sells for 35 cents a copy, the latter for 5 cents, from the Superintendent of Documents, Government Printing Office, Washington 25, D.C.

Silence studies sound

THROUGH a grant of $12,000 from the Donner Foundation of Philadelphia, Gallaudet College will build an anechoic chamber for research into hearing and speech; it will be an adjunct to its physics department and will supplement the work of its Hearing and Speech Center. In the echoproof chamber the college will have a facility found in few institutions, and it plans to make the installation available to the physics departments of other colleges.

Gallaudet College, the world's only college for the deaf, is partly supported by Federal funds and operates to a limited extent under the Department of Health, Education, and Welfare. It provides instruction at the elementary and secondary school levels through its Kendall School, a teacher training unit.

NDEA regulations

LETTERS have gone to chief State school officers from the Office of Education enclosing copies of final regulations for titles under the National Defense Education Act: III, sec. 301–304 (financial assistance for instruction in science, mathematics, and modern foreign language in public schools), V–A (guidance, counseling, and testing; identification and encouragement of able students), and X, sec. 1009 (improvement of statistical services of State educational agencies). Private nonprofit schools have received copies of final regulations for title III, sec. 305 (loans to private nonprofit schools to purchase equipment for instruction in science, mathematics, and modern foreign language). The Office administered these programs under tentative regulations until December 31, 1959, when the final regulations appeared in the *Federal Register* (printing in the *Register* makes regulations official).

Inquiries about title III, sec. 301–304, title V–A, and title X, sec. 1009, should be made to State educational agencies; about title III, sec. 305, to the Aid to State and Local Schools Branch, U.S. Office of Education, Washington 25, D.C.

For the young worker

THREE recent publications of the Bureau of Labor Standards, Department of Labor, on work safety and laws affecting young workers are of special interest to counselors and teachers of occupation classes and vocational courses:

We're Never too Young to Learn Safety describes ways of saving fingers, toes, eyes, and muscles through safe work habits.

Self-Training Unit on Child-Labor Laws for Youth Placement Workers, Bulletin 202, will help counselors become familiar with laws affecting the occupational placement of young people.

Some Facts for Young Workers About Work and Labor Laws, Bulletin 208, is for students. Its first part maps out some of the obligations and responsibilities of the worker; its second part gives general information on State and Federal laws affecting workers.

The first publication is free from the Bureau as long as supplies last. The two bulletins sell for 15 cents each from the Superintendent of Documents, Government Printing Office, Washington 25, D.C.

Back issues

DO YOU need back issues of *School Life* and *Higher Education?* The Office of Education has supplies of various issues of both journals dating back to the first (August 1918 for *School Life* and January 1945 for *Higher Education*). They are available for the asking, from the Publications Inquiry Unit, U.S. Office of Education, Washington, 25, D.C.

". . . a new financing method is being used . . ."

PUBLIC SCHOOL BUILDING AUTHORITIES

By
ELMER C. DEERING
Specialist in financing school facilities

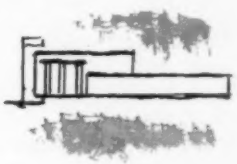
TRADITIONALLY, nearly all large school building projects have been financed through the sale of tax obligation bonds of school administrative units or of the governmental agency on which the school unit fiscally depends. But a new financing method is being used in some States that may very well play a dominant role in the financing of school facilities in the future: the "authority plan," under which a governmental unit acquires school facilities without pledging its full faith and credit and without the direct use of public tax funds for the construction cost of the facilities.

Although school building authorities seem to have sprung up full-grown almost overnight, the authority principle of financing public projects is not new. More than a century ago New York and Pennsylvania financed the construction of canals by this method. For about 75 years it has been used to finance municipal utilities, port facilities, bridges, turnpikes, and hospitals.[1] Under this method the authority sells revenue bonds for the construction of facilities and retires them through the collection of service charges, fees, or tolls. It uses the funds collected in this way to maintain and replace facilities, to pay administrative costs, and to continue the service without profit or the use of public tax funds.

Because they do not normally collect service charges, fees, or tolls, public schools may not be considered suitable for this type of financing. But school boards have long been accustomed to renting buildings, usually without any plan of eventual ownership. When no method of financing the construction of school buildings was available to local boards, renting seemed to be the only means of providing them.

Though inflated costs account for a large part of the increased expenditures for school construction in recent years, total capital outlay for schools in the United States never reached a half billion dollars in any year until 1948–49, when it rose to $664 million. Beginning with the year 1949–50, public school capital outlay has been more than one billion dollars every year, and approached three billion in 1956–57. No wonder boards of education, restricted by low constitutional debt limits, are finding it necessary to resort to unusual means of financing badly needed construction. School building authorities are not accidental; rather they have risen as a means of procuring school buildings without incurring public debt.

The term "school building authority" first appeared in school legislation in 1947, when the Pennsylvania Legislature created the State Public School Building Authority, which has since attracted nationwide attention and has provoked much discussion at educational meetings. Within the next 5 or 6 years the legislative committees on education in many other States seriously considered this method of financing school construction. As a result, at least six States have enacted laws that embody the principle of procuring school facilities through rental agreements.



Pennsylvania was not the first State to provide for the construction of school buildings under rental contracts. The Indiana Legislature in 1927 and the Kentucky Legislature in 1934 enacted laws that authorized boards of education to enter into lease-rental or lease-purchase contracts with holding companies to acquire school facilities.

Probably not more than 30 building projects had been completed in Indiana when the State supreme court ruled that one of the lease-rental contracts contravened the constitutional

[1] Jon Magnuson, "Lease-Financing by Municipal Corporations as a Way Around Debt Limitations," *George Washington Law Review*, XXV (1957), pp. 382–84.

debt limitation authorized for school purposes. During the depression the 1927 law was repealed, and in 1947 a new schoolhouse holding corporation act corrected its legal defects. The Kentucky legislation fared much better. In 1945, about 11 years after the law was passed, more than $7 million in holding company bonds, commonly known as "revenue bonds," were outstanding as compared with about $13 million of "tax obligation bonds," indicating that more than one-third of the cost of school construction in Kentucky between 1934 and 1945 was financed through holding companies under rental contracts. In 1959 nearly 100 percent of school construction bonds in Kentucky were revenue bonds.

There is a simple explanation for Indiana and Kentucky creating school building authorities. At that time the constitutions of both States limited public school debt to 2 percent of the assessed value of property. In 1928 the average debt limit for schools in the United States was about 7 percent of the assessed value of property, though 15 States permitted school debt of 10 percent or more. It is, therefore, not difficult to understand why school boards in Indiana and Kentucky, faced with the need for constructing new school buildings with inadequate bonding power, sought and obtained authority from their respective legislatures to contract for buildings on a rental basis with provision for eventual ownership. In Indiana the legislation provided for the formation of local schoolhouse holding corporations, and in Kentucky city and county governing bodies were authorized to serve in the capacity of holding companies.

Someone may suggest that it would have been simpler for these States to raise the low debt limitation by amending their constitutions. Unsuccessful attempts had been made in both States to raise the debt limit, but that is a difficult and slow process. Within the last 30 years only 11 of the 25 States with constitutional debt limitations have raised the limits, whereas 19 of the 23 States with statutory provisions for school debt have increased the legal limit.[2]

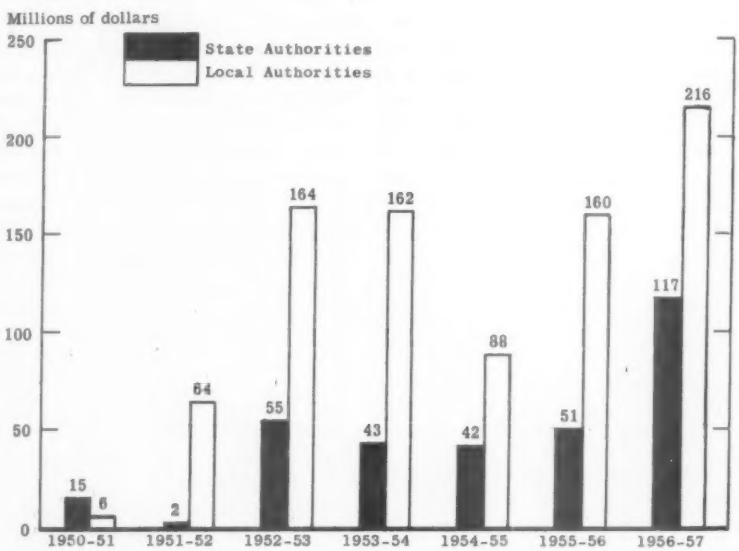
Since World War II school building authorities have been established in States other than Indiana and Kentucky. Although the reasons for their establishment cannot be as simply stated, inadequate bonding power has been a major one. It seems significant that school building authorities have been authorized only in States that have constitutional debt limitations and, as a rule, in States that have not changed the limitations during the last 30 years. It is also significant that three other States with constitutional debt limitations, while not creating school building authorities, have made it possible for school districts with inadequate bonding power to acquire school buildings through rental arrangements.

Following the creation of the Pennsylvania State Public School Building Authority in 1947, the legislatures of Georgia, Indiana, and Maine enacted State school building authority laws in 1951. In the same year, the Pennsylvania Legislature amended its 1925 municipality authority act to include school districts, thus permitting the formation of local school building authorities. Four years later the Wisconsin Legislature approved local school building authorities.

Although each of the State school building authorities uses the word "authority" in the name of the corporation that administers the building projects, only Pennsylvania designates the local corporations as "authorities." They are called "schoolhouse holding corporations" in Indiana and "school building holding companies" in Kentucky. In Wisconsin, local school building authorities are legally known as "non-profit-sharing corporations." But all authorities, both State and local, use the same method of financing—the sale of revenue bonds without pledg-

[2] Clayton D. Hutchins and Elmer C. Deering, *Financing Public School Facilities*, Office of Education, Washington 25, D.C., Misc. No. 32, 1959, p. 24.

Chart 1. **Capital outlay of public school building authorities, 1950–51 to 1956–57**



ing the faith and credit of any governmental unit. It is this characteristic that distinguishes them from other methods of financing school construction.

Whereas authorities for the construction of bridges, turnpikes, public utilities, and ports depend on tolls and fees for the retirement of the revenue bonds, school building authorities must depend on rent to pay the principal and interest on their revenue bonds. This fundamental difference places school building authorities in a different category from other authorities. A school building authority has only one patron for a facility, the local school administrative unit, while other authorities may have thousands of customers.

Without employing the authority method of raising funds for school construction, a few States, notably Illinois and North Dakota, have enacted legislation to permit schools to acquire buildings through rental payments. One other State, Wyoming, permits school administrative units to contract for the construction of school buildings on a rental basis until adequate bonding power becomes available for the purchase of the facilities. In these three States, instead of authorizing the issuance of revenue bonds, the legislatures have appropriated funds for school construction. Since rental receipts are expected to reimburse the States, these programs are similar to loan plans being used in a number of States. The chief difference is that rental agreements on an annual basis are not construed as debt and, therefore, do not violate the constitutional limitations.

Most of the publicity about school building authorities has been focused on State authorities, particularly those in Pennsylvania and Georgia. Since many persons outside these States know little about local authorities in Indiana, Kentucky, Pennsylvania, and Wisconsin, many may be surprised to learn that during the 7-year period, 1950–51 through 1956–57, local authorities spent $860 million for school construction and State authorities only $324 million.[3] See chart 1.

In the 7-year period 72.6 percent of expenditures by school building authorities for construction was made by local authorities and only 27.4 percent by State authorities. The following tabulation gives these percentages of expenditures for construction for each year from 1950–51 through 1956–57:

Year	*Percent by local authority*	*Percent by State authority*
1950–51	28.6	71.4
1951–52	97.0	3.0
1952–53	74.9	25.1
1953–54	79.0	21.0
1954–55	67.7	32.3
1955–56	75.8	24.2
1956–57	64.9	35.1
7-year total	72.6	27.4

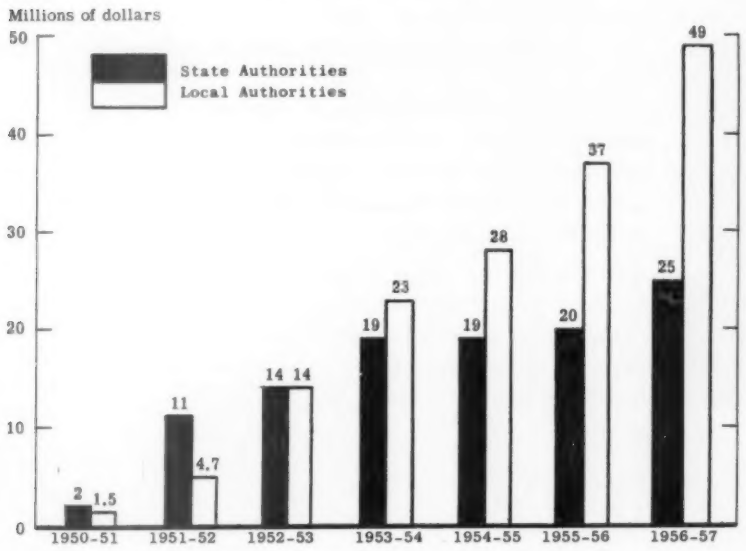
Another indication of the relative activity of State and local school building authorities is the amount of rent paid by school administrative units to each type of authority. During the 7-year period $158 million was paid in rent to local authorities as against $110 million to State authorities.[4] Chart 2 presents a comparison of rental payments to each type of authority for the 7-year period.

On a percentage basis, 59 percent of the rent paid by school administrative units for the 7-year period went to local school building authorities as compared to 41 percent to State authorities. The following tabulation gives these percentages for each year from 1950–51 through 1956–57:

Year	*Percent of rent to local authorities*	*Percent of rent to State authorities*
1950–51	42.9	57.1
1951–52	30.0	70.0
1952–53	50.0	50.0
1953–54	54.8	45.2
1954–55	59.6	40.4
1955–56	64.9	35.1
1956–57	66.2	33.8
7-year total	59.0	41.0

While expenditures by building authorities have fluctuated, rental pay-

Chart 2. **Rental payments to public school building authorities, 1950–51 to 1956–57**



[3] *Finaning Public School Facilities,* p. 202.

[4] *Financing Public School Facilities,* p. 204.

ments have consistently risen. Rental payments, therefore, constitute a better long-range barometer of the activity of State and local building authorities. The tabulation shows an increase in the percentage of rent paid to local authorities each year after 1951–52 and a corresponding decrease in the percentage paid to State authorities. Since the rent for the year 1956–57 was for the accumulated construction in the 7 years, it is evident that the relative building activity of State and local authorities over the entire period was approximately two to one in favor of local authorities.

The fact that local school building authorities account for about two-thirds of the capital outlay under this method of financing poses a serious problem in the collection of school financial data. State departments of education depend on local school administrative units for information about financial transactions for school purposes, but school building authorities are not required to report to them. School administrative units report to the State department of education their own financial transactions, which usually include disbursements for rent, but no other financial data on authorities.

Since authorities use rental receipts for various purposes, it is not known how much of the rent is spent for bond retirement, interest on debt, insurance, maintenance, administrative costs, and for miscellaneous purposes. School administrative units, therefore, acquire buildings without reporting information on the issuance or retirement of bonds, interest on debt, and, often, insurance and maintenance costs. In 1956–57, capital expenditures by school building authorities amounted to $334 million or slightly more than 11 percent of total school capital outlay in the United States.[5] If this proportion of expenditures by authorities persists, it is reasonable to assume that before long more than 11 percent of school bonded debt, school bond retirement, and interest on school debt will be obligations of school building authorities. While it should be fairly simple to obtain complete financial data from State school building authorities, it would be extremely difficult under present reporting procedures to collect comparable information from local school building authorities.

State departments of education should take immediate steps to obtain annual reports from school building authorities, covering such items as cash balances, securities and notes held, bonds outstanding, bonds issued and sold during the year, rental receipts, receipts from short-term investments, other receipts, bonds retired during the year, interest on bonded debt, interest on short-term debt, capital outlay, building maintenance, insurance payments, administrative costs, and other classified receipts and expenditures. If the financial transactions of school building authorities are not included in local, State, and Federal summaries of school financial data, the validity and comparability of these summaries may be severely impaired.

[5] *Financing Public School Facilities*, p. 13.

EMBLEM OF FRIENDSHIP

ON JANUARY 11, Commissioner of Education Lawrence G. Derthick received a scroll emblematic of friendship between the schoolchildren of Brazil and the United States from representatives of the Gama Foundation of Rio de Janeiro. Signed by 700 Brazilian high school students, the scroll was presented to Dr. Derthick by Coriolano Fernandes Vieira, president of the Center of Studies and Dissemination of American Culture, and Paulo C. Gama, an official of the Foundation. The message on the scroll wishes boys and girls of the United States a "New Year filled with Glory, Peace, and Prosperity."

AEROSPACE EDUCATION *in the* Social Studies

By
WILHELMINA HILL
Specialist for social science

". . . in man's new mobility, a powerful tool . . ."

THE aerospace age and all that it opens to us has tremendous meaning for the social studies. Our concepts of the earth are becoming more distinctly three-dimensional. More and more we are seeing the earth—photographing it, mapping it, even thinking of it—from the air. Sometimes, as our minds follow certain people, from members of our own families to persons in the news, we must think of them as "in the air." The President of the United States could not have made his recent 22,000-mile tour of 11 countries in 19 days without jet flight to speed him.

Time-space relationships are changing, have already changed. In this aerospace age we usually travel with a purpose. The traveler with a mission thinks of space in terms of time—the time it takes to get to a definite place to accomplish a certain objective—rather than in terms of scenery to view along the way. Even the sightseer can now start his scenic viewing at a point of special interest rather than approach it slowly by way of well-known routes and oftenseen landmarks. But no matter what his reason for flying, the traveler must consider also such matters as the time it takes to get to and from his plane at each end of the trip.

Of course the idea of earth in space is no novelty: much of the geographic learning in social studies programs has always been associated with it. We have considered it basic to our knowledge about day and night and the seasons that we understand the rotation of the earth about its axis and its revolution through space around the sun. Now, however, a long-familiar idea is being surrounded with novelty. As man experiments with thrusts into space, he is learning many new things that explain conditions on the earth, such as weather and temperature.

Rapid flight has made it possible for people of the world to get much closer to each other. Properly used, this new mobility of man can be a powerful tool for attaining improved international relations. Improperly used, in an age when atomic weapons and hydrogen bombs can flare, it can lead to tremendous destruction.

The effects of aerospace developments on the individual and on national and international affairs can be understood through the social studies. Young children and teenagers alike are greatly interested in the developments of their times, and by the year 1980 many of them will have reached the age when they will have heavy responsibility for the welfare, peace, and survival of civilization. To help ready them for responsibility is the challenge to teachers of social studies, and to supervisors, curriculum workers, and others who prepare instructional materials.

Place in the curriculum

From the very first year of school the curriculum can draw upon the riches of the aerospace age. At an early age children are interested in the sun, the moon, the stars. They have special interest in the planes which cruise overhead. They like to hear about airplanes, rockets, and satellites, and to see pictures of them. It is not surprising that the kindergarten and primary-school children of our times draw pictures of airplanes, learn about them, and describe them. Many of them display a surprising amount of information about aircraft and an equally surprising ability to identify

various types. Even at the tender primary-school age, many children have already flown.

At first, in the primary grades, children learn about airplanes in connection with getting acquainted with their environment, their own neighborhood and community. Sometimes these children have a unit of study about airplanes, which in some schools includes a trip to the airport or even a flight. Schools are giving increasing attention to the airport as a vital part of the community.

In the third grade many children learn how the needs for food, clothing, shelter, transportation, and communication are met in their community. Already, through modern air travel and television, they have had many contacts with the peoples of the world; and they now begin to learn how the necessities of life are provided in other countries. Naturally the developments in aviation and high-altitude flight have an important place in transportation and communication units at the third-grade level.

To fourth-graders aerospace education can be particularly rewarding as an integrating factor. At the beginning of the year these children often study a unit on world geography which develops the idea of the earth as a sphere. Through this study they learn about the continents and oceans, travel routes, and climatic zones. Here the teacher has a remarkably fine opportunity for teaching these fundamental facts in the setting of the aerospace age, but a search through curriculum and instructional materials indicates that too little has been accomplished in this direction. Certainly, as schools develop the study of our global world, with emphasis on the study of maps and globes, it is appropriate that they give time and attention to such matters as airline routes, satellite orbits, rocket flights, and other manifestations of today's developments in space.

In many fourth grades, children study type lands and peoples for the better part of the year. They learn about life in tropical, desert, temperate, mountainous, island, arctic, and other kinds of environments. Aviation can help to tie these studies together and to give the children a clearer understanding of time and space and their interrelations.

As fifth- and sixth-grade children study the United States, the other Americas, and the Eastern Hemisphere, alert teachers use aviation to heighten the interest of the children and to make their learning experiences more meaningful. They emphasize aviation routes and schedules, and work especially to develop a better understanding of the people who live in the areas to which planes come and go.

In junior high school the social studies programs give considerable attention to the aerospace age. This is especially true in the seventh and ninth grades, where world geography is often taught.

Senior high school students have opportunities to study aviation in world geography courses, which may be elected at about the tenth grade but are seldom required. At the twelfth-grade level, they have excellent opportunities to study developments and problems of the aerospace age in courses in problems of American democracy or problems of the world.

So, throughout the social studies curriculum, from kindergarten through grade twelve, there are numerous opportunities for developing aerospace understandings. Many secondary school social studies programs, however, do not provide for much geographic education and hence do not offer maximum opportunity for the development of aerospace concepts and skills.

Vigor and enrichment

Aerospace education can give vigor and enrichment to the social studies. It takes advantage of an interest that already exists in children and young people, who, despite the "groundedness" of some of their elders, are really living in the aerospace age.

Social studies is an area in which instruction must be realistic. We must view the world as it is and as it is likely to be in the foreseeable future rather than as we have become accustomed to think of it. "What is past is prologue" reads a quotation from Shakespeare near the entrance to our National Archives Building. Never has this statement been more true than at the dawn of this aerospace age.

As we view the development of civilization, we see how slow man's progress has been in terms of really significant technological achievements—a mere snail's pace. A spectacular feature of the aerospace age is the stepped-up rate of change. Never before in our history has mankind been geared to make such earth-shattering changes in so many fields at such a rapid rate. It is this new rate of change in our social and scientific world that calls so urgently for new emphases in education.

By placing social studies learning throughout the grades in its proper setting—the setting of a rapidly developing aerospace age—we can sharpen the focus, make the concepts more meaningful, and enrich the program. In this setting, the social studies program helps to give the emphases so urgently demanded, and does so in many ways.

▶ It brings to the fore the *geographic* concepts, information, and skills needed for living in the aerospace age. Children are eager to keep informed of man's attempts to penetrate space. They have many experiences in three-dimensional geography; they often view the world from above, through their own eyes or the lens of a camera. For our aerospace-age children, time-space relationships have become important, especially with re-

spect to flight, and map and globe study and the study of the lands and people of the world have taken on new meaning.

▶It enriches by helping pupils keep informed about *new and developing uses of aviation.* Of great interest and importance to children are space exploration, the commercial use of jet planes, conservation of resources through use of planes, health and rescue work, hurricane tracking and other weather-predicting activities, polar exploration, map making, the transporting of animals and other commercial cargo by plane, and the part that animals play in space exploration.

▶It provides satisfying opportunities for *gifted* children and those with special interests and experiences. It also increases learning opportunities for children who are *slow learners* or retarded in reading. The drive of interest in aerospace developments can often carry children over hurdles in the learning process.

▶It gives children many *direct learning* experiences. At all levels they may visit airports, which now have become significant components of community life. They may see the latest developments in rapid communication, handling of baggage, traffic control, and weather stations. They may interview people about aviation problems and developments. Occasionally the school can arrange for its pupils to fly, as some schools have done in California, Colorado, Pennsylvania, Delaware, Florida, and many other States.

Teachers as well as pupils need enriching experiences in aerospace education. They find increased understanding and contact both through traveling by air themselves and through attending aerospace workshops, conferences, and institutes. In April 1959 a conference of school administrators, supervisors, and others concerned with aerospace education was held in Las Vegas, Nev., in conjunction with the World Congress of Flight. Those in attendance heard the breaking of the sound barrier and viewed some of the newest developments in military uses of flight as well as the world's finest precision flyers in action. Discussion sessions of the "First World Forum of Aerospace Education Leaders" dealt with the new dimensions of aerospace education and their importance for our schools and colleges; and some of the ideas presented there are being expressed again in this article.

Using current affairs

Current affairs are usually an important part of the social studies program. Here lies one of the most effective means of helping boys and girls keep informed of developments in our aerospace age. Through newspapers and magazines, on radio and television the pupils follow the President on his good-will tours or on other flights affecting the peace of the world or our national welfare; they see his effectiveness increased through the new speed and mobility of jet planes. They read about new attempts to develop space flight, new types of planes, and new uses of planes, rockets, missiles, satellites; they look at pictures and talk about them.

> **Thou must now at last**
> **perceive of what universe**
> **thou art a part . . .**
> **and that a limit of time is**
> **fixed for thee, which**
> **if thou dost not use for**
> **clearing away the clouds**
> **from thy mind, it will go**
> **and thou wilt go,**
> **and it will never return.**
>
> —*Marcus Aurelius*

The classroom that gives current affairs a significant place is likely to have a well-arranged bulletin board, a good supply of news weeklies, pictorial magazines, and newspapers, and collections of pictures, maps, and posters dealing with aerospace developments and news. It keeps globes and maps handy for locating sites and routes.

Even in secondary schools that have more or less neglected geography in their social studies programs, the ongoing study of current affairs provides a necessary continuity for carrying on aerospace education. Students at tenth and eleventh grade levels may be concentrating on world history or American history, but through the study of current events they can still keep abreast of aerospace-age problems and developments. So important is this kind of study for our young citizens that teachers should plan for it definitely rather than leave it to chance alone. Pupils in social studies classes may volunteer either as individuals or as committees to carry the responsibility for keeping their classmates informed of significant aerospace age happenings and accomplishments. Reports, panel discussions, films, bulletin board displays, and collections of free and inexpensive aerospace materials are some of the means they may use in presenting aerospace-age facts and developments in their classes.

International understanding

International understanding can be deepened and expanded through aerospace education. I might even say that comprehensive international understanding cannot be gained except as international relations are viewed in terms of the aerospace age.

Airplanes, television, and social studies at school help children learn about and have more contacts with people and places of the world. Understanding other people and how they, their homes, and their countries are affected by aerospace developments, both positively and negatively, becomes a central theme for social studies programs. From this focal position in the social studies curriculum, teachers can help children of today prepare for their citizenship responsibilities both in the present and in the challenging years ahead.

FOREIGN LANGUAGES AND THE LIBRARIAN

Cooperation between the foreign language teacher and the librarian can do much to promote the foreign language program

By ESTHER M. EATON, *specialist for foreign languages*

This article is adapted from a presentation made by Miss Eaton on October 2, 1959, as a panel member of the Librarians' Section of the North Nassau Zone meeting of the New York State Teachers Association shortly after she joined the staff of the Office of Education as specialist for foreign languages in the Secondary Schools Section, Division of State and Local School Systems. Prior to that time she was chairman of the modern language department in the Garden City (N.Y.) High School.

DOES the foreign-language instructional program receive the fullest possible support through the cooperative efforts of the librarian and the foreign-language teacher?

The findings of a research study made by the National Education Association in 1958 [1] would seem to indicate some doubt on this point. The study found that foreign language teachers ranked fourth in the frequency of their use of the school library, coming well after English, social studies, and science teachers. Only about 60 percent of the foreign language teachers questioned considered the material in their libraries important or essential to effective teaching (5 percent of them even considered it unimportant), and only about 63 percent of them felt their librarians were sufficiently acquainted with the material covered in their classes.

[1] Inquiry on school library services made by the NEA Research Division at the request of and with the cooperation of the Joint Committee of the National Education Association and the American Library Association, and with the help of a special advisory committee of the American Association of School Librarians brought 1,468 replies.

Yet, there is ample evidence that the foreign language teacher and the school librarian can speak the same language when both understand how they can work together to promote better language learning. From my own experience with three excellent librarians over a period of many years in the Garden City (N.Y.) High School, I know that both can work toward this goal by knowing what each can do to help the other through constant interchange of ideas and information.

The librarian in the classroom

Naturally, the school library does not formulate the program of any department, but in many ways it can help the department carry out its program. On the other hand, though librarians have done yeoman's service in acquainting themselves with the subject matter in all fields of the school curriculum and with material available in each field, they are not subject specialists. The teacher must make the decisions on what the library should have in order to help him teach his subject. Perhaps the first step toward cooperation is to have the librarian attend a department meeting.

The librarian can help promote the foreign language program in many ways:

- He can locate lists of books for the teacher to look over from which to choose titles for the foreign language shelves.
- He can announce periodically his deadline for sending orders to remind the teacher of his opportunity—and his obligation—to augment the foreign language shelf with additional reading and reference material.
- He can send the teacher a "Have you seen?" slip on new books, articles, and newspaper clippings to keep him informed of new developments.
- On the advice of the teacher, he can collect material for an assignment and place it on a reserve shelf, and he can advise a student of material helpful in completing an assignment.
- The librarian can encourage the student to read in the library any material that he cannot take home, such as periodicals and newspapers.
- He can collect illustrative material for file and for display in the library to stimulate interest and to correlate with class work.
- He can arrange displays of class material sent him by the teacher.
- He can maintain a professional shelf for the teacher.
- A librarian with special knowledge or skill can be brought into the classroom as a resource person. Such a service makes the student realize that the librarian can do more than dispense books.

The teacher in the library

The foreign language teacher, on his part, can use the school library to its full advantage by supporting the efforts of the librarian and by acting in his own capacity as a teacher and specialist to initiate action he sees necessary to promote his program:

- He can, in his professional reading, be on the watch for books that he or his students need.
- He can work with the librarian in preparing a graded list of books

and material for permanent display and use in the library and the classroom.

- He can help students select reading matter based on his knowledge of class requirements and the student's attainment and interest.
- He can inform the librarian of special demands well in advance of special assignments.
- He can send the librarian special display material which has been prepared by his class and which he believes will stimulate learning.
- He can grade the books the librarian sends to him so that they will be appropriately indexed on the foreign language booklist.
- He can study the librarian's list of acquisitions to find what books are relevant to his field.

Other services

In many schools the audiovisual material and equipment are purchased and loaned through the library, a service of great value to the teacher. Often the library makes a corner available for language listening practice and, if the space is away from the regular library readers, for speaking practice as well.

The librarian need not take the initiative more than the foreign language teacher in establishing rapport between them; however, if, as organizer and distributor of resources and materials, he *does* take the necessary steps to make the teacher aware of what the library can do for language learning, he will be making the services of both more valuable.

"MUSTS" FOR THE FOREIGN LANGUAGE SHELF

Some suggestions to the librarian, from the secondary school foreign language teacher

Language association publications

The Classical Journal. Classical Association of the Middle West and South, Norman Pratt, Jr., 1232 Central Avenue, Wilmette, Ill. $3.75.

The Classical Outlook. American Classical League, Miami University, Oxford, Ohio. $1.

French Review. American Association of Teachers of French. George B. Watts, Davidson College, Davidson, N.C. $4.

German Quarterly. American Association of Teachers of German. Herbert H. J. Peisel, Syracuse University, Syracuse, N.Y. $4.50.

Hispania. American Association of Teachers of Spanish and Portuguese. Laurel H. Turk, DePauw University, Greencastle, Ind. $5.

Italica. American Association of Teachers of Italian. Norma V. Fornaciari, Roosevelt University, Chicago 5, Ill. $3.50.

Language Learning. Institute of Applied Linguistics, 1522 Rockham Building, Ann Arbor, Mich. $3.

The Modern Language Journal. National Federation of Modern Language Teachers Associations. Stephen L. Pitcher, 7144 Washington Avenue, St. Louis 5, Mo. $4.

Slavic and Eastern Journal. American Association of Teachers of Slavic and East European Languages of the United States, Inc. Edmund Ordon, Wayne State University, Detroit 2, Mich. $5.

Audiovisual materials and equipment

Audio-Visual Instruction. Sept. 1959, Frederick Eddy and Elton Hocking, editors. Department of Audio-Visual Instruction, National Education Association, 1201 16th Street NW., Washington 6, D.C. 50 cents.
(A basic primer of 45 questions and answers on language laboratory equipment and procedures.)

CSSO Purchase Guide, 1959, For Mathematics, Science, and Foreign Languages. Ginn and Company. $3.95 (educational discount).

Curriculum material

Experimental Units for Teaching French, German, Russian, and Spanish to Beginning Language Students, by Mary Thompson, Glastonbury Public Schools, Glastonbury, Conn. Free.

Foreign Languages—Grades 7–12, Curriculum Bulletin Series No. V, State Department of Education, Hartford, Conn. Free.

Modern Foreign Languages in the Comprehensive High School, National Association of Secondary School Principals, National Education Association, 1201 16th Street NW., Washington 6, D.C. 15 cents.

Office of Education publications

FREE (request single copies from the Publications Inquiry Unit, U.S. Office of Education, Washington 25, D.C. Please include publication number):

Materials in Russian for Possible Use in High School Classes, by Ilo Remer. July 1959. (OE–14001.)

Modern Foreign Language in the Secondary School: Prereading Instruction, by Pat O'Connor. June 1959. Cir. No. 583.

References on Foreign Languages in the Elementary School, by Marjorie Johnston and Ilo Remer. June 1959. Cir. No. 495.

School Library Materials in Science, Mathematics, Modern Languages, and Guidance and How to Use Them, by Mary Helen Mahar. Reprint from *School Life,* January–February 1959.

Source Materials for Secondary School Teachers of Foreign Languages, by Marjorie Johnston and Esther Eaton. November 1959. (OE–27001.)

FOR SALE (order from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. Remittance must accompany order):

Foreign Language Laboratories in Schools and Colleges, by Marjorie C. Johnston and Catharine C. Seerley. Bul. 1959, No. 3. 35 Cents.

Modern Foreign Languages in the High School, by Marjorie C. Johnston. Bul. 1958, No. 16. $1.

School Life (official journal of the Office of Education, issued monthly September through May). $1. Lists new Office of Education publications as they are issued.

The National Interest and Foreign Languages, by William Parker. Rev. 1957. UN/No. 30. 65 cents.

Other

Headline Series. Foreign Policy Association, 343 E. 46th Street, New York 17, N.Y. $4.

Northeast Conference on the Teaching of Foreign Languages. Report of the Working Committees. Available from Nelson Books, MAT Program, Yale University, New Haven, Conn. $2.50 each (package deal: first five reports, 1954–58 incl., $5.)

Pan American Union, 19th and Constitution Avenue NW., Washington 6, D.C. Write for complete list of materials available and free price list. This includes a large selection of inexpensive, easy reading in Spanish on subjects of interest to high school students.

Staffing for School Management — *THE LEGAL FACTOR*

By WINSTON L. ROESCH, *specialist in administrative staffing*

TO ASK a group of educators the question, "What are the factors in the establishment of administrative and specialized service positions in a local school system?" is to immediately evoke a discussion of a long list of variables. The list would surely include size, money, school law, type of district, kind of school, scope of program, kind and extent of cooperative services, attitude and quality of the staff, location of the schools, and management policies.

In this list the four dominant factors or variables appear to be size, money, quality of the staff, and school law. Expressed as a unity of State constitutional provisions, statutes, regulations of State educational authorities, the legal factor may shape the action of local boards of education in the administrative positions they will institute, whom they will employ, and how much the administrators will be paid.

The legal factor has several fundamental parts. One of these is found in the provisions of State statutes that either expressly set forth or imply the power of local boards of education to employ school superintendents, business managers, directors, supervisors, principals, school physicians, and others in administrative or special positions. Provisions in the school laws of 48 States confer varying degrees of employment power on local school boards either directly or by necessary implication. In general, a local school board has a wide range of permissive authority in deciding on the particular positions to be instituted in a school system. State statutes and other legal requirements may, however, have the effect of narrowing a board's freedom of choice. For example, a State law may set up administrative positions and direct local boards of education of one or more classes of school districts to fill them. The rule-making power of the State education authority may also significantly affect the decision of local boards to employ staff members such as a director of pupil personnel, a school psychologist or physician.

The freedom of choice school boards have in establishing administrative and specialized service positions has not been treated extensively in educational research, primarily because of the widespread acceptance of the principle that local boards of education have the power, either by direct grant or by necessary implication, to establish and fill such positions. There now appears to be a need for an examination of this principle as it *functions* in the approximately 43,000 operating school districts in the United States.

In recognition of this need the Office of Education has conducted a study of adminstrative staffing in local school districts.[1]

This study shows that some administrative and specialized service positions are expressly affirmed by statute as being within the employment power of local boards—for example, the positions of school superintendent and principal. In at least 44 States the position of superintendent of schools or district superintendent is so recognized. In 33 States laws specify that at least some boards of education may or shall employ the school principal.

There is a marked contrast in the statutory provisions on the superintendency and principalship and those on instructional supervisors. Even though a number of States have introduced specific certification requirements for instructional supervisors as well as principals and superintendents, only a few have specified in their statutes that local boards *shall* employ instructional supervisors. In 24 States statutory provisions expressly authorize governing boards of one or more classes of local districts to employ supervisors of instruction; with few exceptions their authority is clearly permissive. When we consider the duty-to-employ provisions of State statutes, the difference in the legal basis for the position of school superintendent or principal and instructional supervisor becomes apparent. The difference is major.

In 1957–58 in each of 33 States the employment of a school superintendent was expressed in the general statutes as a *duty* of at least some local boards, whereas no State had statutory provisions explicitly directing local boards to employ special instructional supervisors in mathematics, science, music, or art.

This difference is narrowed, but very slightly, by the inclusion of general instructional supervisors. In 1957–58 only one State specified by statute that all or nearly all local boards of education shall employ a general instructional supervisor, in this instance a supervising teacher. Statutory provisions applicable to special subject-matter supervisors in areas other than science, mathematics, and art indicate that in a few States some local boards have the duty of employing supervisors of physical education.

The provisions of State finance acts in which instructional supervisory positions are explicitly set forth does affect employment. In eight of the States financial aid laws either desig-

[1] Winston L. Roesch, *Statutory Basis for Administrative and Specialized Service Staffing in Local School Districts.* Office of Education Bulletin 1960, No. 1. 208 p. 75 cents.

nate instructional supervisor or use the term "supervisor" in provisions for specific financial support for administrative and specialized service positions. Again, however, these laws do not specify that special subject-matter supervisors shall be employed.[2] One State aid act requires a school district participating in the minimum foundation fund to employ a supervisor or supervisor of instruction for a full calendar year.

There are marked contrasts in board authority over pupil personnel positions. An analysis of four positions—director of pupil personnel, visiting teacher, school psychologist, and attendance officer—shows that freedom to employ varies significantly within this cluster of positions. Two of them—the position of attendance officer and school psychologist—may be used to illustrate the variation.

Belief in compulsory education for all children regardless of race, creed, or social status is deeply rooted in American democracy. This belief is reflected to some extent in the general statutes of 42 States providing that local boards of education may establish the position of attendance officer, supervisor of attendance, attendance assistant, truant officer, or an equivalent position. A strong tendency to make the position mandatory and thus to narrow the board's freedom of choice is evident: 23 States prescribe the position as an employment duty of some boards.

Local boards have considerably more discretionary authority to employ a school psychologist than an attendance officer. Such authority is implied. Statutes of 48 States disclose no provisions which specifically authorize or empower local boards to employ professional staff members with the title school psychologist, educational psychologist, or psychologist. Statutory provisions of one State have made employment of a psychological examiner a duty of local boards.

When power to employ is considered in the light of a State's general classification system of school districts, a board's freedom of choice takes on new meaning. Excluding special act or charter school districts, States with one class of local district generally provide the same employment power for the relatively small as for the large districts. They may, however, deal with problems of district size by introducing minimum standards.

States with more than one general class of school districts may utilize the classification system to widen employment authority of some boards and to narrow it for others. The State may disregard its classification system completely in providing for some positions or limit its use to one of several positions.

The power of local boards to institute a particular administrative or service position may also vary as a result of school district requirements that are expressed in the statutes. As these are minimum rather than maximum requirements, they usually affect the employment power of boards in small school districts. As mentioned earlier, the requirements may be keyed to the State's general classification of school districts.

The school superintendency is a case in point. In three States the school district classification system has been used to restrict the authority of small school districts to establish a position bearing the title of superintendent of schools or district superintendent of schools. However, in several other States, also with more than one class of school districts, the same objective has been achieved without recourse to the State's general classification system. Generally, this is done by prescribing that any board of education has the power to employ a school superintendent providing that the school has met the minimum standards. When administrative and specialized staffing positions are considered as a group, more statutory use is made of school district classification system to increase or decrease the employment powers of boards than of any other device.

The study shows that the primary statutory restriction expressly applied to the power of local boards to institute positions is size of system. Size may be expressed in number of teachers or pupils, district population, or in the number and kinds of schools. As a result of school district reorganization and the widespread increase in enrollments, minimums specifying that a school district may have, for example, more than eight teachers tend to have little effect on administrative and specialized service staffing in school systems that operate K–12 or 1–12 programs.

Another kind of statutory requirement is found in school health positions. In at least three States the existence of adequate State, county, or city public health services tends to restrict local boards in the independent employment of school nurses or school physicians. In substance, the laws set forth that positions of school physician or school nurse may be established by a local board of education provided that adequate district public health services are not available or cannot be conveniently obtained. Such legislation generally applies to all or nearly all school districts of a State and therefore has a more significant effect on the local board's freedom of choice than current statutory provisions that set low minimum standards of school district or school size.

As was pointed out in the beginning, the legal variable is only one of several that influence administrative and specialized service staffing. The legal variable, in turn, is composed of sections or parts with decidedly complex structures. State constitutional and statutory provisions empowering local school boards, committees, or agencies to employ staff need to be studied in association with the regulations of State education authorities and court decisions. Functionally, the study should consider the interrelation of powers of local boards, district classification systems, requirements for certification of personnel, duties of staff members and State financial aid programs.

[2] Rules and regulations of State boards of education are not included in the analysis.

By **WALTER M. ARNOLD**, *director, Area Vocational Education*

AREA VOCATIONAL EDUCATION PROGRAMS

MANY public school officials are already well-acquainted with the two chief ideas which meld in the area vocational education programs provided for in title VIII of the National Defense Education Act. The first of these ideas is that the public schools can provide high-quality programs to train workers with well-developed technical skills and a fine competence for applying the principles of science and mathematics; the second, that the cost and complication of such programs can be most easily and efficiently borne if the programs are organized and operated to serve large areas of the States rather than single localities (hence the term "*area* vocational education"). That these two ideas are not strangers to many schoolmen is owing to the number of public technical education programs already in existence that have enviable reputations for preparing highly skilled technicians, and to the many programs that offer a variety of educational opportunities on an area basis.

The time is fast approaching, however, when a great many more public school officials will be face to face with the job of providing in their schools a high level of technical training. Certainly with every day that passes, the professional school administrator is assuming more of the responsibility for training highly skilled men and women for the Nation's defense. First, of course, he has an obligation to provide, within the limits of his community's resources, the education that will best serve the interests, aptitudes, abilities, and needs of its youth and help them to operate at maximum capacity as workers and citizens. At the same time, as a professional community leader, he must assume responsibility for planning and conducting educational programs that will help to meet the employment needs of community, area, State, and Nation.

What I am writing here has one overriding purpose: To inform school administrators about the nature and activities of the programs receiving Federal aid under title VIII of the National Defense Education Act, in the hope that it will help them use such programs to make significant educational contributions to their communities.

To study stress caused by heat, a metallurgy technology student makes a photomicrograph of an alloy specimen.

A post-high-school student in a highly specialized program in vacuum tube technology learns how to operate a glass lathe.

Left, **post-high-school students in a 2-year institute are being trained as highly skilled electronics technicians.**

***Above,* a well-equipped drafting room serves an extension course training tool designers for the aircraft industry.**

***Left,* the engineering technician gives increasingly important service on the production team in engineering.**

Background for title VIII

Time may well prove that title VIII of the NDEA had a greater impact on vocational-technical education than any other event since the Smith-Hughes Act was passed in 1917.

The NDEA was passed at a time when the Nation was just becoming alert to the great technological changes that were developing at an accelerated pace and affecting both its economy and its security. Automation, missiles, atomic power, the electronic data computer, and many other technological and scientific developments were all pointing toward a growing demand for highly skilled technicians to serve as members of research, design, development, and production teams of engineers and scientists.

The 85th Congress saw that an educational program for supplying the needed technicians could be developed most economically and efficiently on an area basis. An area administrative organization has many advantages. Usually it is more flexible and effective than local administration because of its broader administrative and taxing base, the possibility of enrolling more students from a larger geographical area, the wider range of courses it can provide, and the variety of facilities and equipment it can make available to meet the specific and immediate training needs of workers already employed as well as of students preparing to enter occupations.

Congress placed the responsibility for administering title VIII in the State boards for vocational education and the Vocational Education Division of the Office of Education. Obviously it considered the long-established Federal-State relationship and its productivity a valuable aspect of vocational education, one that could be used in meeting the country's needs in a rapidly growing technology.

Objectives of the title

In common with all other titles of the NDEA, title VIII has several general but important characteristics.

First, it seeks to strengthen our national defense.

Second, it seeks to identify the more able, among both the young and the mature, who can complete high-quality instructional programs.

Third, it emphasizes science, mathematics, and engineering and technical knowledge. It is in the broad fields of science and technology that the NDEA anticipates increased development of education and more effective use of manpower.

It has other important objectives, too. Among them are these:

- The expansion and improvement of teaching services and laboratory facilities for evening adult education progams, especially in science, mathematics, modern foreign languages, and technical subjects, a change which in itself should stimulate more and better programs of adult or continuing education.

- A stronger and larger educational program on the secondary and post-high-school levels.

- Equalization of educational opportunities for able students in science and technology.

- Emphasis on improved quality in teaching and guidance.

- Attention to new and improved methods of teaching based on research in educational psychology and other fields.

Program standards

The purpose of title VIII is best expressed in section 303(a)(3) of the title itself:

> . . . funds . . . shall be used exclusively for the training of individuals designed to fit them for useful employment as highly skilled technicians in recognized occupations requiring scientific knowledge as determined by the State board for such State, in fields necessary for the national defense.

Several essential principles must be recognized and standards met to as-

sure that programs under title VIII conform with the purpose of the title:

1. The program must be an area vocational education program, that is, a program of vocational instruction consisting of one or more less-than-college-grade courses conducted under public supervision and control on an organized systematic class basis, available to residents of the State or an area thereof designated and approved by the State board. Such a program recognizes the uneven distribution of training facilities throughout the country and the limited training opportunities available to many qualified youth and adults who reside in communities without such facilities and opportunities.

2. The programs must not be limited to any one of the categories of vocational education supported by the Smith-Hughes Act and the George-Barden Act.

3. There must be a need in the employment market for the types of workers being trained.

4. The content of the courses must be determined by competent persons on the basis of an analysis of the occupation or a cluster of occupations.

5. Those enrolled in the program must have the general educational background necessary to benefit from the instruction they are given; or such general education, including scientific education, must be available to them as part of their total curriculum.

6. The program must devote enough time to the technical courses in the curriculum to fit the enrollees for employment.

7. Classroom and shop and laboratory facilities, including instructional equipment and supplies for effective instruction, must be available.

8. Instructors and supervisors must have professional and technical preparation and experience.

9. Students must be selected on the basis of interests, aptitudes, previous education, and work experience.

FOR the public high school, a chance to do something different in vocational education . . .
NOT manual training
NOT industrial arts
NOT trade training
NOT additional courses in the physical sciences
. . . but REAL TECHNICAL EDUCATION

Use of funds

The title authorizes the use of Federal funds for 10 broad purposes, including the salaries and travel expenses of teachers and supervisors; the purchase of instructional equipment, supplies, and teaching aids; vocational guidance activities; transportation of students; and research and studies to obtain essential information and data. Each State, however, decides the purposes, within the provisions of the title, for which it will use the funds.

Programs were started and title VIII funds were used in practically all of the States and Territories in fiscal year 1959. State and local dollar-for-dollar matching funds were provided in accordance with the law. Some States did better than dollar-for-dollar. In many States, where no State funds were available for matching, local funds were used.

During the first year of operation, Federal funds were applied primarily to instructors' salaries, the purchase of equipment, and the cost of surveys. Preliminary reports from the States indicate that the total program being developed under the title will require the full $7 million appropriated for fiscal year 1960. The State boards have shown initiative in getting programs under way, and great care has been taken to use effectively all funds in conformity with the title.

Early developments

Immediately after President Eisenhower signed the NDEA, the Office took steps to enable States to organize training programs as soon as possible.

Consultants were recruited from the States to help prepare the first set of regulations and guides for the States to use in drafting required amendments to existing State plans for vocational education. Conferences were held with chief State school officers, State directors of vocational education, and other interested persons at the national and State levels. The Area Vocational Education Branch was established in the Office and staffed with consultants qualified to provide leadership on the program.

During fiscal year 1959 practically all of the States approved State plans, and about 300 schools conducted programs and courses enrolling about 50,000 students.

During fiscal year 1959, 13 States passed legislation to implement or to establish area vocational education programs; the rest were able to initiate programs under existing legislation. Fourteen States appointed special supervisors to promote programs, to establish standards for program approval, and to supervise programs. Other States utilized existing vocational staffs for these purposes.

Committees and surveys

Competent State and area supervisory committees representing labor and industry were organized and used to give advice on such matters as program offerings, curriculums, course content, equipment requirements, instructor qualifications, and student selection standards.

Surveys were one of the techniques used to obtain information about manpower and training needs. Carefully devised studies were conducted by State departments and cooperating institutions to determine the areas to be served, the training needs, the number of qualified students to be trained, and the available facilities and instructors. Frequently other Government agencies, such as the Bureau of Employment Security, assisted in the interpretation of the data and in preparing reports.

Extension and preparation

The surveys indicated that training was needed in a wide variety of tech-

nologies, not only for those preparing for employment as technicians, but also for those who were already employed and wanted to acquire the necessary abilities for employment requiring technical competence.

Preparatory programs were made available to secondary school students in the upper levels of their classes, to high school graduates who wished to pursue technician training in their 13th and 14th years of schooling, and to adults who were able to meet the qualifications for admission. Many preparatory programs were conducted for adult workers during evening hours, some for as many as 10 to 15 hours each week. Adults enrolled in these classes will need to continue their school work for several years before they can complete their training.

The surveys found there was a considerable need for short-unit extension courses in applied mathematics, science, and technology to improve the technical background of technicians in their present occupations or to prepare them for new kinds of work in these occupations. The flexibility of State vocational education administrative organizations and their many years of experience in developing programs have made it possible for them to provide for the great variety of technical training needs identified by the surveys and the industrial advisory groups.

Of the students enrolled in title VIII programs during fiscal year 1959, more than half were in extension programs. The enrollment responses revealed the value of these programs to qualified persons who had not had adequate training opportunities.

Programs and courses

A variety of programs and courses for the training of technicians under title VIII were in operation during school year 1958–59. Approximately two-thirds of the total enrollment were post-high-school students. Rigorous preparatory training programs, usually 2 years in length, were organized in electronics, mechanical drafting and tool design, instrumentation, industrial chemistry, data programming, and metallurgy. Unit extension courses emphasizing the applications of science and mathematics were offered in special technologies such as tool optics, missile telemetry, servomechanism, radar theory, automation electronics, microwave theory, theory of transistors, electronic data processing, stress analysis, technical report writing, cost analysis, time study, quality control, and tool planning. As the program progresses, the variety of offerings will undoubtedly increase materially.

Kinds of schools

State boards for vocational education have approved title VIII programs in various types of institutions, and programs have been operated in vocational-technical high schools, comprehensive high schools, community or junior colleges, 4-year colleges, and State operated vocational and technical schools. The programs offered by these institutions were organized to make training opportunities available to the greatest possible number of students in an area.

Years ago, technical institutes were the only institutions beyond the high school where technicians could be trained. Since then, a number of these institutes have moved from their original objectives and become 4-year colleges granting baccalaureate degrees.

At present, technical institute programs are post high school, usually 2 years in length and terminal in nature. They offer concentrated courses in technology with a minimum of time devoted to the humanities, considering that there is little enough time for the technical courses and assuming that the other competencies for citizenship have been gained in high school. Courses range from specialized training, such as that for electronic or instrument technicians, to more general training for engineering aides who will be granted an associate degree in engineering.

Many junior colleges were established later than technical institutes and have different objectives, though some offer similar courses. Some do not hold to the terminal nature of technician training because it conflicts with their basic philosophy of serving as the first 2 years of college. A pre-engineering program in the junior colleges is not designed for technician training, nor is it feasible to rearrange such courses to attain that ob-

A student in electrical technology checks readings in a speed control test.

jective. But a number of community colleges have emulated technical institutes and today offer the same types of technical training.

High school programs

Many administrators of large high schools do not seem to be cognizant of the responsibility and opportunity they have for conducting technical education programs for their more able students. In fact, many are under the impression that technical education cannot be accomplished in the high school. Yet real technical education—training for entrance jobs as technicians, not manual training, not industrial arts, not trade training, not additional courses in the physical sciences—can be accomplished at the high school level if the real difficulties are recognized and resolved. That it can be done has been demonstrated: a limited number of real technical education curriculums have been available to able students in technical high schools, vocational-technical high schools, and comprehensive high schools in various parts of the country. Sometimes, of course, the name "technical" has been loosely joined with "high school," justified by nothing in the curriculum except various practical courses.

It is the curriculum, not the type or name of the high school, that discloses whether the school is offering real technical education. Programs for real technical education require well-equipped shops and science laboratories. They provide special technology laboratories, such as strength-of-materials, metallurgy, industrial chemistry, power, and electricity. They need special textbooks, special supplies, and teachers with special qualifications.

The students in technical education programs must be carefully selected for intelligence and aptitude for technical training. Not only must they cope with the rigorous technician-training part of the program, but they must complete a general education course as well. Because the program is difficult, a long school day is necessary. Usually the high school program takes at least 3 years, either starting at the 10th grade or continuing beyond the 12th. Although the program has as its primary objective the preparation of technicians, it has such breadth and makes such demands that some graduates are accepted by engineering colleges.

Technician training programs require equipment not usually found in science classes—engineering equipment that must be kept in good operating condition and replaced as tech-

Statistic of the Month

School Retention Rate Rises

FROM the fifth grade on, children are staying in school longer than they used to. (Up to the fifth grade, it is assumed, compulsory education laws keep virtually all children in school.)

The class that entered college in 1956 was the fifth-grade class of 1948–49. In the intervening years a good many of the class, 699 out of every 1,000, had dropped out somewhere along the line. One hundred thirty-seven had already been lost by the time the class entered high school. Another 282 didn't stay to graduate. And 280 of the graduates didn't go to college the next fall.

Compared to what happened to the fifth grade of a quarter of a century earlier, however, this is a bright record. For every 1,000 fifth-graders in 1924–25, 388 didn't enter high school, 310 didn't stay to graduate, and only 118 entered college the following fall (1932).

In the 24 years that separated the two fifth-grade classes, then, the retention rates rose a great deal. The number entering the ninth grade rose from 61.2 percent to 86.3 percent; the number graduating from high school, from 30.2 percent to 58.1 percent; and the number entering college, from 11.8 percent to 30.1

Approximate retention, fifth grade through college entrance, 1924–25 to 1955–56

For every 1,000 fifth graders in—	This many entered 9th grade (high school)	This many graduated from high school	This many entered college	Year of college entrance
1924–25	612	302	118	1932
1926–27	677	333	129	1934
1928–29	736	378	137	1936
1930–31	780	417	148	1938
1932–33	776	455	160	1940
1934–35	803	467	129	1942
1936–37	839	393	121	1944
1938–39	796	419	(1)	1946
1940–41	781	481	(1)	1948
1942–43	807	505	205	1950
1944–45	848	522	234	1952
1946–47	872	553	283	1954
1948–49	863	581	301	1956

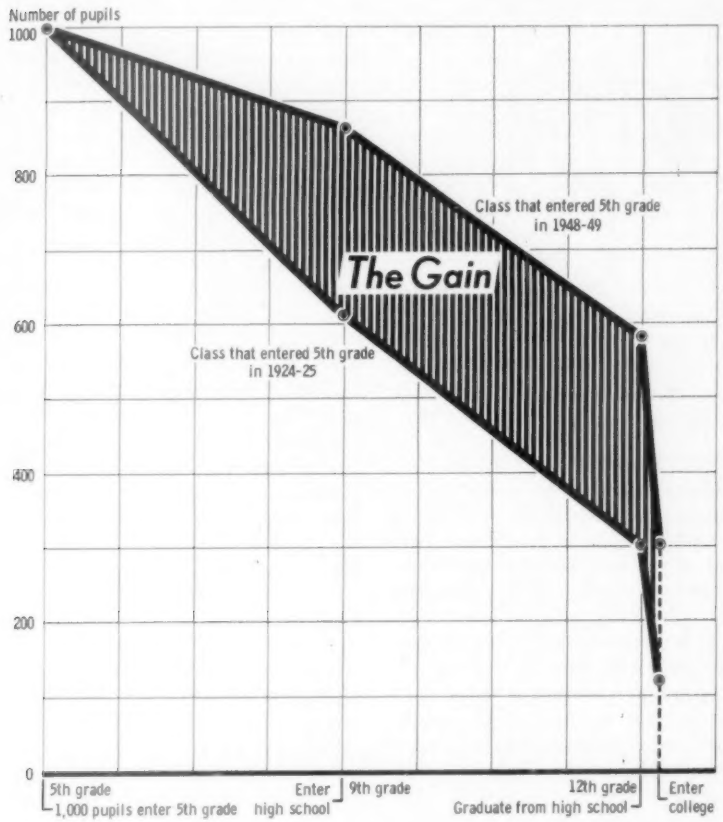
[1] Lack of detailed information on veteran students would make any calculation of retention rates unreliable.

Source: U.S. Department of Health, Education, and Welfare, Office of Education, *Biennial Survey of Education in the United States, 1954–56*, Ch. 1, "Statistical Summary of Education, 1955–56," table 6, p. 13.

percent. It is interesting to note that the later class did as well at entering college as the earlier class did at graduating from high school.

These rates mean a gain all along the line, as the shaded area of the graph shows: a 41-percent increase in the rate of entering high school, a 92-percent increase in the rate of graduating from high school, and a 155-percent increase in the rate of entering college.

Since, under compulsory education laws, practically all children are at some time enrolled in the fifth grade, in either a public or a private school, a 30-percent retention to college entrance, such as that achieved in 1956, means we are fast approaching, if we have not already passed, the point where one-third of our college-age population is entering college.—Emery Foster, chief, Research Studies and Surveys Section.



nology advances. What is more, they require teachers with enough engineering background to enable them to teach science and mathematics by demonstration and direct application. Programs of this kind can be offered only in large schools or in large cities, where there are enough able and interested students to warrant the investment in equipment and teachers.

Many technician training programs of all kinds have been set up in facilities already available, and some programs have been conducted in school buildings abandoned because of population shifts. Others have used the facilities of high schools during the evening hours. Good training may be accomplished under such conditions only when high standards for selection of pupils and teachers and equipment have been observed.

Organizing programs

The public school administrator interested in obtaining additional information about title VIII and the procedures for initiating programs should communicate with his chief State school officer or his State director of vocational education. The State boards for vocational education, with the cooperation and assistance of other governmental agencies concerned with manpower utilization, are increasing their information and staffs to work closely with school administrators in implementing high quality programs that will serve local, area, State, and national needs for highly skilled technicians.

The Area Vocational Education Branch of the Division of Vocational Education, Office of Education, is organized to give administrative and professional service to the States. The Branch has prepared a variety of explanatory materials and publications for distribution to the States to assist them further in program development in specific areas of technology. Such materials and publications are available to school administrators through their own State boards for vocational education. The Branch will prepare and distribute other material from time to time.

As he faces the challenge to the public schools for more quality and rigor in education, the school administrator has in title VIII an opportunity to pool the best resources of his community, the talent of his staff and students, and the facilities of other agencies on all levels of government to help serve and preserve the Nation. In the final analysis the success of a public educational program depends on the vision, the understanding, and the action of school administrators.

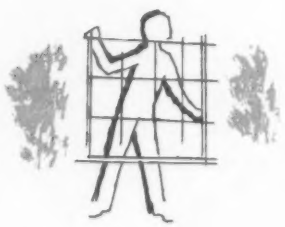
A sound long-range plan makes allowance for every kind of job, whether it is done once a week, once a year, or once a generation

R. N. FINCHUM
Specialist for school plant management

MAINTENANCE on a SCHEDULE

SCHOOL plant maintenance—those procedures, activities, and services that preserve and protect school buildings, grounds, and equipment and keep them in a satisfactory state of repair—covers a wide range of activities, including adjustments, repairs, renovations, and some replacements. Maintenance is vitally important to the pupil, the educational program, and the community because the school building is a shelter and home for the pupil, serves as a tool of education, and is often the center of community life. Dedicated to school and community use, and frequently representing the most costly and important community investment, the school plant should be so operated and maintained that it provides optimum service, produces an environment favorable to health and learning, assures maximum safety for occupants, and merits public approval and appreciation.

School plant maintenance programs that accomplish these aims do not "just happen." They are well planned, efficiently managed, competently carried out, and adequately supported—always with the best interests of the pupils in mind. The well-planned program is flexible enough to cope with the unexpected, specific enough to utilize to best advantage the time and skills of all school plant employees, and broad enough to cover all maintenance categories. Each major activity in the program is timed to become part of



a long-range master schedule, with each job given a tentative starting and completion date and the various items of work effectively distributed among all school plant employees.

Recurring maintenance

The term "recurring maintenance" refers to jobs and tasks that should be performed one or more times each year. They may be done by the custodial staff or by the maintenance department, depending on local policy; but no matter who is responsible, efficiency will be improved if the tasks are on a scheduled basis.

Examples of recurring maintenance are cleaning operations, some types of floor and furniture care, some lawn and ground maintenance, and specialized care of mechanical and heating equipment.

The frequency with which certain floor maintenance tasks should be performed depends on the amount of traffic or use, the type of floor and floor covering, and the condition of the school grounds. Floors covered with composition tile and subjected to consistently heavy traffic may need frequent washing and waxing; other floors, similarly covered but less used, may need this care only twice each year. Wood floors in classrooms and similar areas may require stripping, sealing, and waxing once each year. Wood floors in gymnasiums and playrooms may require scrubbing, repainting of court lines, and refinishing with a tough gym finish, with or without waxing, once each year; and exposed concrete floors may require sealing, or some other method of dust control, once or twice each year.

Furniture also requires maintenance; what kind and how much depends on the furniture—on the materials from which it was made—and the usage it gets. If constructed of materials that can be marred by pencils or other sharp objects, it may need frequent sanding and refinishing. If constructed of one of the recently developed materials that resist marks and scratches, it is more easily maintained. Rough usage, however, may create maintenance problems regardless of materials. Students' desks and chairs should be dusted daily and thoroughly cleaned and rehabilitated annually. Daily cleaning is obviously a task for the operating personnel; annual cleaning and rehabilitation are tasks for the maintenance crew.

In general, light fixtures and interior glass surfaces should be cleaned monthly; exterior glass, at least twice a year; and all painted classroom

and corridor walls, annually. Helix and stack switches on oil burners, boiler tubes, and furnace flues should be cleaned weekly.

Maintenance of lawn and grounds requires work at various intervals. During the growing season, weekly jobs include trimming, edging, weeding, and, if the season is dry, watering. A monthly duty is the removal of grass, weeds, and debris from roads, driveways, walkways, and footpaths. Seasonal jobs include pruning and trimming ornamental shrubbery, removing diseased and dead shrubs and plants, and, in some climates, removing snow from steps, walks, and driveways. Lawns should be fed semiannually and seeded annually. Shrubs should be replaced annually.

Mechanical and heating equipment, like other essential elements of the school plant, requires constant vigilance and frequent maintenance, some of it highly specialized. Motors and motor-driven equipment should be inspected daily and may require weekly lubrication. Heating and hot water boilers should be blown down at least twice each year, automatic control devices should be inspected weekly, and mechanical ventilating systems should be checked frequently to uncover any need for adjustment.

In school systems where the maintenance department performs these recurring tasks, scheduling is accomplished in several ways. Some districts use several rotating crews, each taking care of specialized building needs on a recurring cycle of from 5 to 8 weeks. Others require the director of maintenance to assign a tentative starting and completion date for each job and to designate the persons who are to do the work; such a plan gives the director an opportunity to inspect the work, either in progress or upon completion. Still others keep a job ticket board in the central maintenance office, a device that requires a ticket for each job. The ticket is pegged to a special board until the job is completed, and then the work order form, together with other records, is filed with the director of maintenance.

Periodic maintenance

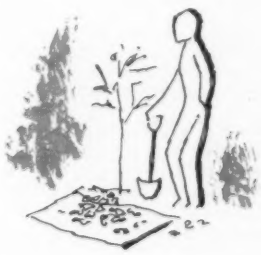
The term "periodic maintenance" refers to repairs and renovation jobs that follow cycles of from 3 to 5 years. Examples are painting, roof repair, and weatherproofing.

One of the major costs in a preventive maintenance program is that of repainting exteriors and redecorating interiors. The primary purpose of exterior painting is to protect exposed surfaces; a secondary purpose is to improve appearance. The purpose of interior painting is to increase light reflection, improve appearance, and, incidentally, preserve surfaces.

Schedules for repainting school buildings vary greatly from region to region, climate and weather affecting the desirable frequency. In localities where smoke fumes are heavy or where there is much deterioration from salt spray or blowing sand, painting may have to be more frequent than it is elsewhere. Generally, outside painting needs to be scheduled every 3 to 5 years; inside surface painting, every 5 years, except where weather is extreme.

Emergencies may call for nonscheduled painting, and schools should provide for it along with the scheduled jobs. Experience indicates that about 80 percent of the painting budget goes for scheduled jobs, about 20 percent for the nonscheduled.

A leaking roof is one of the most irritating and damaging of the school's maintenance problems. Failure to prevent leaks may lead to serious damage and cause discomfort to pupils and teachers. Precautions against leakage can be taken through a program of inspection, making minor repairs as needed, and periodic treating of certain roofing materials to preserve life. Inspection and minor repairs should be made annually. Metal and builtup roofs should be given preservation treatments every 3 to 5 years—paint or a special compound for metal roofs and a hot asphaltic compound for builtup roofs. Experience has shown that money spent on roof maintenance is good economy in the long run.



A common source of damage to school buildings is moisture penetrating the walls and accumulating around outside windows and doors. The ravages of climate tend to break down exposed surfaces, thereby contributing to deterioration and shortening the building's life. Weatherproofing is the procedure by which such deterioration may be checked. There is no way to predict with certainty the exact interval at which weatherproofing jobs will have to be done, but experience indicates that the span is between 5 and 10 years, depending on quality of materials, standards of workmanship, and climatic conditions.

Replacement maintenance

The term "replacement maintenance" means essentially what it implies: repairs that can be made by substituting new parts for old in worn or damaged furniture, equipment, and structures. Like periodic maintenance, it will be required at unpredictable times; but experience, carefully kept records, and regular inspections will be of value in developing replacement schedules. Experience will indicate the frequency with which such work has been done in the past; records will establish the age of furniture, equipment, and structure; and inspections will reveal flaws and weaknesses that may indicate the time at which replacement will be necessary.

Roofing, plumbing, floor surfaces, lighting, and equipment are some areas in which replacement maintenance is required. For example, experience seems to indicate that roofing should be replaced every 20 to 25 years; plumbing fixtures, every 25 to

30 years; and floor surfaces, every 15 years. Fluorescent tubes and incandescent bulbs should of course be replaced as needed. Certain types of instructional equipment, such as typewriters, business machines, audio-visual equipment, and electronic apparatus, should be inspected annually for damaged, worn, or defective parts that need replacement. Replacement maintenance for transportation equipment may depend more on miles of travel and road conditions than on time in use. For example, tires may need replacing every 15,000 to 20,000 miles; brakes, relining every 40,000 to 50,000 miles; and motors, overhauling or exchange every 75,000 to 100,000 miles.

Emergency maintenance

"Emergency maintenance," as the term suggests, means all repair work that is made necessary by fortuitous circumstances. Even though the time for it may be inopportune, it must be done if the school plant is to be kept open and in use. Such maintenance cannot be scheduled.

Examples include repairs that must be made because a heating plant has failed, a storm or a fire or vandals have damaged a building, or sub-zero temperatures have frozen the pipes. Although these repairs cannot be placed on the master schedule, school officials can and should make allowance for them when planning the schedule. This can be done, in most cases, by allotting about 35 percent of the total available man hours, and from 10 to 20 percent of the annual maintenance budget—depending on the age and condition of buildings and equipment—for routine and emergency maintenance. This procedure should protect school districts against disruption of the master schedule.

UN Children's Fund . . .

IN OVER 100 countries of the world millions of children who can neither read nor write and who may never have heard a radio, know that the United Nations exists and is working for them. Their knowledge is personal, having come with food and medicines from the United Nations Childrens Fund (Unicef), an agency established in 1946 for mothers and children in countries needing and requesting aid. Unicef aid first went to war-devasted countries but now goes chiefly to long-range programs under governments in underdeveloped areas.

In its 13 years Unicef has shipped a billion pounds of dried milk; provided tuberculosis vaccine for 120 million children; helped equip over 20,000 health

1960 Summer Language Institutes

WITH funds made available by the National Defense Education Act of 1958, 35 colleges and universities will conduct language institutes in the summer of 1960 for teachers of modern foreign languages.

Foreign language teachers or supervisors or trainers of teachers in public and private schools are eligible to apply. No tuition or other fees will be charged. Persons who are teaching, preparing to teach, or supervising or training teachers of any foreign language in a public elementary or secondary school may receive, if their applications are accepted, a stipend of $75 a week and an allowance of $15 a week for each dependent.

Persons who were enrolled in a 1959 summer institute are not eligible for admission in 1960 except as specifically noted in the list below. Requests for application forms or for further information should be sent to the director of the institute. Applications for admission must be postmarked before March 1, 1960.

FRENCH

Elementary teachers

*University of Maine
Orono, Maine
Wilmarth H. Starr, *director*
July 6—Aug. 23, 95 participants

*Washington University
St. Louis, Mo.
Milan S. La Du, *director*
June 20—Aug. 12, 50 participants

*Listed twice.

Secondary teachers

Hollins College
Hollins College, Va.
Maurice W. Sullivan, *director*
June 27—Aug. 21, 52 participants
Advanced level for persons who completed an NDEA institute in French in 1959.

*University of New Hampshire
Durham, N.H.
R. Alberto Casas, *director*
June 27—Aug. 5, 40 participants

SPANISH

Secondary teachers

University of Oklahoma
Norman, Okla.
Jim P. Artman, *director*
June 6—July 29, 42 participants

University of Puerto Rico
Rio Piedras, Puerto Rico
Margot Arce de Vazquez, *director*
June 15—July 27, 50 participants
Advanced level for persons who completed a 1959 institute in Spanish.

FRENCH AND SPANISH

Elementary teachers

Tufts University
Medford, Mass.
Seymour O. Simches, *director*
June 27—Aug. 5, 40 participants

Secondary teachers

University of Alabama
University, Alabama
Wade H. Coleman, Jr., *director*
June 13—Aug. 15, 45 participants

University of California
Los Angeles 24, Calif.
John E. Englekirk, *director*
June 27—Aug. 12, 60 participants

Colgate University
Hamilton, New York
James F. Dickinson, *director*
June 26—Aug. 13, 60 participants

Converse College
Spartanburg, S. C.

By Maurice Pate, *executive director*, UNICEF

centers and some 200 dairies and plants for drying milk and processing other high-protein foods; and supplied insecticides and drugs for campaigns against diseases like malaria, trachoma, and leprosy.

In 1957 its aid was expanded to help train nutritionists and educate rural families in nutrition practices by providing equipment for school gardens and projects in raising animals and fish. Last spring its aid was further extended to help train primary school teachers in such subjects as health and home economics.

Unicef's part in these programs is financed by gifts from governments and people, a circumstance that makes the children in donor countries the partners of those in receiving countries. In donor countries voluntary groups work to acquaint people with needs and programs and to sponsor activities specially designed for children. In the United States, for example, thousands of children at Hallowe'en time ring door bells to ask, not for candy and apples for themselves, but for pennies "to help the children of Unicef in other countries."

Sanford Newell, *director*
June 13—Aug. 6, 40 participants

University of Georgia
Athens, Georgia
Howard S. Jordan, *director*
June 13—July 30, 64 participants

University of Missouri
Columbia, Mo.
J. S. Brushwood, *director*
June 18—July 29, 62 participants

Montana State University
Missoula, Mont.
Robert M. Burgess, *director*
June 20—Aug. 12, 44 participants

Purdue University
Lafayette, Ind.
David G. Speer, *director*
June 20—Aug. 12, 60 participants

Temple University
Philadelphia 22, Pa.
James D. Powell, *director*
June 27—Aug. 5, 60 participants

University of Tennessee
Knoxville, Tenn.
Walter R. Heilman, Jr., *director*
June 13—July 22, 44 participants

Utah State University
Logan, Utah
M. L. Nielsen, *director*
June 13—July 22, 43 participants

Virginia State College
Petersburg, Va.
William T. Carter, *director*
June 13—Aug. 6, 44 participants

University of Wisconsin
Madison 6, Wis.
Russell P. Sebold, *director*
June 20—Aug. 12, 60 participants

Elementary and secondary teachers

University of Delaware
Newark, Del.
Max S. Kirch, *director*
June 20—Aug. 12, 60 participants

Louisiana State University
Baton Rouge 3, La.
John A. Thompson, *director*
June 19—Aug. 13, 72 participants

*University of Maine
Orono, Maine
Wilmarth H. Starr, *director*
July 6—Aug. 23, 95 participants

Michigan State University
East Lansing, Mich.
Georgs J. Joyaux, *director*
June 21—Aug. 5, 60 participants

University of Oregon
Eugene, Oreg.
David M. Dougherty, *director*
June 27—Aug. 12, 60 participants

Rosary College
River Forest, Ill.
Sister Marie Gregoire, *director*
June 24—Aug. 5, 60 participants

FRENCH AND ITALIAN

Secondary teachers

Central Connecticut State College
New Britain, Conn.
Arthur M. Selvi, *director*
June 27—Aug. 5, 60 participants

FRENCH AND GERMAN

Secondary teachers

University of Cincinnati
Cincinnati 21, Ohio
L. Clark Keating, *director*
June 27—Aug. 5, 60 participants

University of North Dakota
Grand Forks, N. Dak.
Norman Levin, *director*
June 13—Aug. 5, 42 participants

University of Washington
Seattle, Wash.
Richard F. Wilkie, *director*
June 17—Aug. 11, 60 participants

*Washington University
St. Louis, Mo.
Milan S. La Du, *director*
June 20—Aug. 12, 50 participants

GERMAN AND SPANISH

Elementary teachers

University of Kansas
Lawrence, Kans.
Agnes Brady, *director*
June 20—Aug. 12, 65 participants

Secondary teachers

Hofstra College
Hempstead, N. Y.
Joseph G. Astman, *director*
July 5—Aug. 26, 40 participants

University of Texas
Austin 12, Tex.
Ernest F. Haden, *director*
June 20—Aug. 12, 60 participants

GERMAN AND RUSSIAN

Secondary teachers

Northwestern University
Evanston, Ill.
C. R. Goedsche, *director*
June 25—Aug. 18, 60 participants

GERMAN

Elementary teachers

*University of New Hampshire
Durham, N.H.
R. Alberto Casas, *director*
June 27—Aug. 5, 40 participants

Secondary teachers

Stanford University
Palo Alto, Calif.
F. W. Strothmann, *director*
June 19—Aug. 19, 86 participants
To be held in Bad Boll, Germany. Advanced level for persons who completed a 1959 institute in German or are especially well qualified.

FRENCH, GERMAN, AND SPANISH

Secondary teachers

University of Colorado
Boulder, Colo.
George A. C. Scherer, *director*
June 26—Aug. 20, 100 participants

RESEARCH related to the education of MENTALLY RETARDED CHILDREN

A summary of representative projects under the cooperative research program of the Office of Education

By WILLIAM R. CARRIKER
Research coordinator

IN THE NEARLY 4 years since the Federal Government began its program of financial aid to researchers in education, *School Life* has been reporting briefly from time to time on the progress of that program. But until now we have looked at the program chiefly from the standpoint of the individual project or from the standpoint of overall totals, and have made little attempt to weave related threads together.

Now, however, with this summary of projects bearing on educational problems of the mentally retarded, we begin a series of articles, each of which will draw together projects shedding light on one particular problem.

OF the 234 projects contracted for under the Cooperative Research Program by January 1, 1960, as many as 60, or approximately 25 percent, are concerned with educational problems of the mentally retarded. They account for 34.9 percent ($3.7 million) of the total Federal funds obligated thus far for the program ($10.6 million). They range in length from only a few months to as much as 5 years; and 25, or 41.6 percent, have been completed.

For completed projects, average Federal support has been $23,776.50 per project; for the still unfinished projects it is $86,494.64. In addition to Federal funds, the projects receive contributions of services and facilities from their sponsoring institutions and agencies—contributions which average about one-third of the total cost.

MAJOR AREAS

The 60 projects can be conveniently, though arbitrarily, categorized into eight major areas (as is usual, of course, some unavoidable overlap occurs among categories):

Cognitive processes, 5 projects
Communication, 9 projects
Counseling and guidance, 3 projects
Education and training, 22 projects
Identification and survey, 3 projects
Learning, 9 projects
Measuring instruments, 4 projects
Miscellaneous, 5 projects

The three largest categories—communication, education and training, and learning—take in exactly two-thirds of the projects.

Communication projects cover research (both surveys and testing) in educational problems associated with hearing. They also cover problems of speech and language, including bilingualism, development, and therapy. Four of the projects deal with educable children, 2 with trainable (severely retarded), and 3 with both educable and trainable. Three of the 9 projects are completed.

Projects under *education and training*, which make up the largest group, are concerned with problems pertaining to (1) basic academic skills, such as reading, writing, and arithmetic; (2) methodology, including special devices, aids, and techniques; and (3) classroom organization, including methods of serving the children. Sixteen of these projects are concerned with educable children; the rest, with trainable. Six of the 22 projects are completed.

The projects under *learning* are concerned with such factors as retention, recall, recognition, and motivation. Seven have confined their investigations to educable children; one has studied trainable children only; and one has studied both. Six of the 9 projects are completed.

Of the 60 projects, 37 are concerned with educable children, 11 with trainable, and 12 with both educable and trainable. Most of the children in the projects were from combined chronological age levels, either of primary and intermediate school, of intermediate and secondary school, or of all three. Despite the variety of age levels included in the program, however, there has yet been no project that deals exclusively with children of preschool age.

EXAMPLES

The following summarized studies are representative of the 60 contracted research projects pertaining to education of the mentally retarded. Examples are provided of both completed and current projects.

Cognitive processes

Perception of symbols in skill learning by mentally retarded children: Virgil E. Herrick and Theodore L. Harris, of the University of Wisconsin, have found that mentally retarded children appear to differ from normal and superior children in "perception of form and meaning."

They have also observed that it is difficult for retarded children (1) to match their own handwriting with samples on a scale and (2) to judge which of several samples of their own handwriting is best. Compared with normal or superior children, they seem more disposed to "either anxiety or relative indifference regarding the task."

Drs. Herrick and Harris are now conducting a second project, in which they are utilizing the results of the first. In addition to handwriting, this second project is concerned with reading, spelling, and arithmetic. The researchers will attempt to improve the situation under which they test children and to make a more detailed analysis of mentally retarded children's perception of form and meaning.

Communication

Language achievements of mentally retarded children: Donald C. Durrell and Helen B. Sullivan of Boston University report that for mentally retarded children the best language channel for learning is listening, especially in the primary grades. They also report that at the primary level these children have a reading level markedly below the level of their reading comprehension, and that the discrepancy is even greater at the intermediate level. Both the primary and intermediate groups were found definitely inadequate in the written recall of ideas they had heard expressed. The investigators feel that both groups would profit from systematic instruction in reading, speaking, and writing.

Investigation of mental retardation and pseudo-mental retardation in relation to bilingual and subcultural factors: Willard Abraham of Arizona State College is conducting this study. His subjects are recently immigrated Mexican children and Indian children.

Counseling and guidance

A study of the modification of parental attitudes toward an understanding of mentally retarded children: Dale B. Harris of the University of Minnesota has found that group sessions with parents, whether conducted on a lecture basis or not, make little difference, within a span of 10 to 12 contacts, on any variable of information, attitude, or skill. Mr. Harris suggests that if parents would maintain long-continued contacts with agencies and would affiliate with organizations having plans for group and political action, their personal morale might be improved.

A study of the structure of attitudes of parents of mentally retarded children and a study of change in attitude structure: William M. Cruickshank at Syracuse University is attempting to assess the attitudes of parents in order to determine what personality variables affect their attitudes, and what effect periodic counseling would have on those attitudes. The parents are from the middle-income socioeconomic level and have educable mentally retarded children.

Education and training

Quantitative and qualitative analyses of exogenous and endogenous children in some reading processes: Rudolph J. Capobianco and Donald T. Miller of Syracuse University, in their study of thirty endogenous and thirty exogenous mentally retarded children, have found no significant differences between the performance of the two groups in silent and oral reading, pattern of reading errors, and techniques of auditory and visual perception.

Identification and evaluation of methods for teaching severely retarded (trainable) children: Margaret Hudson of George Peabody College for Teachers has identified in her exploratory and descriptive study seven problem areas in teaching techniques: (1) Individual and group control, (2) getting the children willing to start and to continue working, (3) building up a sense of personal worth in the children, (4) structuring or guiding the learning; (5) encouraging cooperative interpersonal interaction, (6) providing for a mind-set or attention, and (7) drawing from the children (as opposed to pouring in). The teachers she observed placed more emphasis on language development than on any other teaching area.

The efficacy of special class training on the development of mentally retarded children: Herbert Goldstein of the University of Illinois is making a longitudinal study to attempt comparison of two groups of educable mentally retarded children: the experimental group will be educated in a special class beginning at the age of 6 years; the control group will be educated in a regular class. His comparison will be based on the children's mental, educational, and social development.

A comparative investigation of the learning and adjustment of trainable children in public school facilities, local segregated facilities, and State residential centers: J. R. Peck of the University of Texas is attempting to determine whether a public school, a locally supported center, or a State institution offers the best opportunity for growth and progress to trainable children with IQ's ranging from 25 through 50.

Identification and survey

Identification of mentally retarded children in Wyoming through objective Statewide screening: Velma Linford of the Wyoming State Board of Education has found that (1) in every county there are retarded children in need of special education, (2) approximately 5 percent of the school-age population (ages 6 to 21) are retarded to the extent that regular classroom instruction is not suitable for them, and (3) approximately 25 percent of the school population falls into the category of slow learner. Her findings were based on tests which, over a period of approximately 7 months, were administered to 91.8 percent of all children enrolled in the public schools and 86.5 percent of all children in nonpublic schools—a population representing 95.5 percent of all children in the school census between the ages of 6 and 16, and 79.2 percent of those between the ages of 6 and 21.

Study of screening procedures for special education services to mentally retarded children: W. R. Burris of the Mississippi State Department of Education is conducting an investigation to devise an effective and workable method of screening children in grades 1 through 6 for placement in special classes for the retarded.

Learning

An analysis of learning efficiency in arithmetic of mentally retarded children in comparison with children of average and high intelligence: Henry J. Klausmeir of the University of Wisconsin has found " . . . no difference in retention of arithmetic learnings among children of low, average, and high intelligence when the learning task is graded to each child's current achievement level and retention is measured in units of practical arithmetic exercises or in time to learn or relearn to solve a novel arithmetic problem."

The most important implication of the study, according to Dr. Klausmeir, is that teachers of mentally retarded children should determine, early in the school year, the achievement level of each child, select learning material at the next highest level, and then offer individualized or small-group instruction. He found that although retarded children learn more slowly than children with average and high IQ's, they can master material at their own level of difficulty and retain it as well as children in the other two groups.

He also found only minor motivational problems in teaching all three groups of children, and considers that probably all the motivation a child needs is confidence in his ability to master a task, partial reinforcement of correct responses, and his teacher's approval.

Responses of bright, normal, and retarded children to learning tasks: L. M. Malpass and N. A. Carrier of Southern Illinois University have recently begun an attempt to relate indicators of emotional tension and motivation to intelligence level and performance in the learning tasks.

Measuring instruments

Measurement of educability of severely mentally retarded children: Howard Newburger and Helen Schucman of New York University have completed a study designed to devise a method for securing an objective, quantifiable, and predictive measure of the educability of the severely mentally retarded children. Their method involved the assessment of abilities on which education depends, that is, learning under training, transferring training, and retaining learning. Some of the conclusions stated by the investigators are these:

> Learning performance was more closely related to teachers' ratings, psychologists' estimated IQ's, and Vineland Social Quotients than was initial performance.
>
> The tests were reliable.
>
> Good evidence on behalf of construct validity, and partial demonstration of predictive validity were obtained . . .

The investigators believe that the method of testing used in this study would be appropriate for other groups of children, such as the moderately retarded and the younger severely retarded.

Comparative investigation of methods of testing auditory and visual acuity of trainable mentally retarded children: William G. Wolfe of the University of Texas is attempting to develop and evaluate auditory and visual testing procedures.

Miscellaneous

Critique of research on psychological and educational factors in mental retardation: Julian C. Stanley and Ellen T. Beeman of the University of Wisconsin have addressed themselves to the methodological problem of matching, on various factors, experimental and control groups of mentally retarded children. They offer these suggestions:

> 1. If your "experimental" and "control" groups differ initially with respect to one or more antecedent variables thought to be correlated with the outcome of the study, perform an analysis of covariance rather than matching subjects.
>
> 2. If you contemplate matching on a single antecedent variable merely to secure more power, rather than to equate initial means, a randomized block design will often be superior to the analysis of covariance and considerably easier to analyze.
>
> 3. Whenever you do match individuals or groups, be sure to take this matching explicitly into account in your statistical analysis.

Motor characteristics of the mentally retarded: Robert J. Francis and G. Lawrence Rarick of the University of Wisconsin have found that mentally retarded children are markedly inferior in all motor performance tests and that their deviation from the normal tends to grow greater as they grow older. However, the general pattern of change by age and sex is similar to that reported for normal children.

Terminology and concepts in appraising the mentally retarded: Irving Lorge at Teachers College, Columbia University, is conducting a study which reviews status and regulations related to the classification and education of the mentally retarded, surveys classification procedures used, and reviews published sources concerned with classification. His purpose is to disclose the lack of agreement among the definitions of terms used in classifying the retarded.

General Observations

Research relating to the education of the mentally retarded seems to point to certain concepts, revealing some that are newly emerging and reenforcing others. Among these concepts are the following:

1. The old saying, "Strong back and weak mind," is not substantiated by research dealing with motor characteristics and motor performance of the mentally retarded.

2. Belief in the infallibility of the IQ is not as widespread as it has been.

3. Such factors as culture, environment, and mental health, to the extent that they influence mental development and ability, are being considered more and more as important variables in the education of the mentally retarded.

4. There are many and varied kinds of learning, and mentally retarded children as a group do not respond to them uniformly.

COOPERATIVE RESEARCH PROJECTS

THE Cooperative Research Program of the Office of Education has awarded 245 contracts to colleges, universities, and State educational agencies throughout the United States, for research, demonstrations, and surveys in education. The projects now under contract call for a total of nearly $11 million in Federal funds. Institutional contributions will increase the total investment.

Earlier issues of *School Life* have reported on contracts awarded before March 1959; those awarded between March 1 and December 31, 1959, are listed under various categories for the reader's convenience; they will not necessarily be used in the final classification. The dollar figure noted for each contract indicates the amount of Federal funds committed to complete the project.

Attitudes and interests

BROOKLYN COLLEGE, *Why successful students of the natural sciences abandon careers in science,* 1 year, 10 months, Edgar Z. Friedenberg, director. Federal funds, $12,999.

UNIVERSITY OF DELAWARE, *The measurement of curiosity in elementary school children,* 2 years, Wallace H. Maw, director. Federal funds, $36,155.

UNIVERSITY OF ILLINOIS, *Prediction and understanding of the effect of children's interests on school performance,* 2 years, Raymond B. Cattell, director. Federal funds, $39,313.

UNIVERSITY OF MARYLAND, *Study of leisure activities and interests of teenage youth,* 1 year, 2 months, Harold C. Hoffsommer, director. Federal funds, $34,250.

MICHIGAN STATE UNIVERSITY, *A comprehensive study of the motivational factors underlying achievement of eleventh grade high school students,* 2 years, 1 month, William W. Farquhar, director, Federal funds, $25,025.

———, *Critical thinking, attitudes, and values in higher education,* 3 years, 3 months, Paul L. Dressel, director. Federal funds, $42,162.

UNIVERSITY OF SANTA CLARA, *The impact of a value-oriented university on student attitudes and thinking,* 1 year, 6 months, Julian F. S. Foster, director. Federal funds, $28,962.

VASSAR COLLEGE, *Measurement and evaluation of change in college women,* 2 years, Mervin B. Freedman, director. Federal funds, $34,500.

Child development

UNIVERSITY OF WISCONSIN, *Improvement of motor development and physical fitness in elementary school children,* 2 years, Ruth B. Glassow, director. Federal funds, $26,655.

Curriculum

HARVARD UNIVERSITY, *The development of designs for curriculum research,* 1 year, Jerome S. Bruner, director. Federal funds, $11,500.

YALE UNIVERSITY, A study of esthetic *judgment,* 3 years, Irvin L. Child, director. Federal funds, $55,834.

Handicapped

GALLAUDET COLLEGE, *An experimental investigation of the effects of institutionalization on the psychoeducational development of children with impaired hearing,* 1 year, 11 months, Stephen P. Quigley, director. Federal funds, $11,109.

UNIVERSITY OF KANSAS, *Development and evaluation of a speech improvement program for kindergarten and first grade children,* 3 years, Margaret C. Byrne, director. Federal funds, $41,466.

QUEENS COLLEGE, *The role of nonverbal symbols in the education of the deaf,* 2 years, Beatrice F. Jacoby, director. Federal funds, $47,854.

YALE UNIVERSITY, *A study of teacher behavior in relation to children differing in anxiety level,* 3 years, Seymour B. Sarason, director. Federal funds, $32,996.

Learning

TEXAS CHRISTIAN UNIVERSITY, *Inductive concept formation in normal and retarded subjects,* 2 years, C. B. Elam, director. Federal funds, $45,080.

UNIVERSITY OF VIRGINIA, *Analysis of processes in paired-associate learning,* 2 years, William F. Battig, director. Federal funds, $14,433.

Mental retardation

THE UNIVERSITY OF GEORGIA, *Studies of the effects of systematic variations of certain conditions related to learning. II. Conditions of practice,* 1 year, 10 months, Ruth B. Glassow, director. Federal funds, $26,655.

UNIVERSITY OF ILLINOIS, *The efficacy of special class training on the development of mentally retarded children,* 5 years, 5 months, Herbert Goldstein, director. Federal funds, $233,921.

——— *Principles for programming learning materials in self-instructional devices for mentally retarded children,* 2 years, 5 months, L. M. Stolurow, director. Federal funds, $41,790.

RHODE ISLAND STATE DEPARTMENT OF EDUCATION, *The adaptation for group classroom use of clinical techniques for teaching brain-damaged children,* 1 year, 6 months, E. Gil Boyer, director. Federal funds, $33,166.

SAN FRANCISCO STATE COLLEGE, *Study of the effect of special day training classes for the severely mentally retarded,* 2 years, Leo F. Cain, director. Federal funds, $139,125.

Organization and administration

UNIVERSITY OF CALIFORNIA, *Procedures for identifying persons with potential for public school administrative positions,* 1 year, 3 months, Edgar L. Morphet, director. Federal funds, $30,940.

HARVARD UNIVERSITY, *Role of the elementary, junior high, and senior high school principal,* 1 year, Neal Gross, director. Federal funds, $56,326.

UNIVERSITY OF KANSAS, *The effects of school and community size upon the education of children,* 3 years, 2 months, Roger G. Barker, director. Federal funds, $61,607.

STANFORD UNIVERSITY, *Revenue sources for the support of public education,* 1 year, 3 months, H. T. James, director. Federal funds, $28,577.

UNIVERSITY OF UTAH, *Organizational climate of schools,* 1 year, 6 months, Andrew W. Halpin, director. Federal funds, $45,116.

WEST VIRGINIA STATE DEPARTMENT OF EDUCATION, *The incentive approach to school improvement,* 1 year, 6 months, Craig Wilson, director. Federal funds, $20,000.

Perception and self-image

UNIVERSITY OF FLORIDA, *Interpersonal perception: The effect of training in perceptual theory, observation and analysis of behavior upon accuracy of prediction of children's self-reports,* 1 year, 6 months, Ira J. Gordon, director. Federal funds, $3,209.

UNIVERSITY OF FLORIDA, *The relationship of child perceptions to achievement and behavior in the early school years,* 2 years, 6 months, Arthur W. Combs, director. Federal funds, $42,493.

MICHIGAN STATE UNIVERSITY, *Identification of self-images and significant others for junior high school students, and exploration of the relationship of self-image to achievement in school subjects,* 1 year, 6 months, W. B. Brookover, director. Federal funds, $19,320.

Population mobility

THE UNIVERSITY OF NORTH CAROLINA, *Occupational choice and mobility in the urbanizing Piedmont of North Carolina,* 1 year, Richard L. Simpson, director. Federal funds, $12,650.

UNIVERSITY OF WISCONSIN, *Determining an effective educational program for children of migratory workers in Wisconsin,* 1 year, Donald R. Thomas, director. Federal funds, $15,135.

Reading

CORNELL UNIVERSITY, *A basic research program on reading,* 3 years, Harry Levin, director. Federal funds, $144,272.

Research methods

NEW YORK STATE UNIVERSITY COLLEGE OF EDUCATION, Albany, *The investigation of a method for the dissemination of educational research findings to practitioners,* 1 year, D. Donley and R. Lorette, directors. Federal funds, $6,497.

UNIVERSITY OF WISCONSIN, *Experimental designs to minimize halo effects in rating and maximize independence of traits, and new statistical procedures to correct for biases of raters,* 1 year, 5 months, Julian Stanley, director. Federal funds $20,607.

Retention

THE UNIVERSITY OF HAWAII, *A study of values as determinants of educational-vocational choices in Hawaii,* 1 year, Arthur A. Dole, director. Federal funds $12,421.

UNIVERSITY OF MICHIGAN, *Contributions by parents to the cost of higher education,* 1 year, 4 months, John B. Lansing, director. Federal funds, $40,020.

NORTHWESTERN UNIVERSITY, *Factors influencing the recruitment and training of intellectually talented students in higher educational programs,* 2 years, 6 months, Donald L. Thistlethwaite, director. Federal funds, $79,785.

THE UNIVERSITY OF TEXAS, *Factors associated with the educational utilization of human talents, Part II,* 1 year, Carson McGuire, director. Federal funds, $43,375.

Social relationships

UNIVERSITY OF MICHIGAN, *Persistence of low levels of education from generation to generation and their relation to low levels of income and income stability,* 1 year, 6 months, James N. Morgan, director. Federal funds, $28,750.

OHIO STATE UNIVERSITY, *Investigation and measurement of the social values governing interpersonal relations among adolescent youth and their teachers,* 2 years, 9 months, G. G. Thompson, director. Federal funds, $37,808.

TROY STATE COLLEGE, *Classroom adjustment of the unaccepted child through changes in teachers' attitudes and behavior,* 1 year, 5 months, G. R. Boyd, director. Federal funds, $31,-162.

Special abilities

UNIVERSITY OF SOUTHERN CALIFORNIA, *Creative thinking in children at the junior high school levels,* 2 years, J. P. Guilford, director. Federal funds, $39,906.

HARVARD UNIVERSITY, *Evaluation and follow-up study of Thayer Academy's summer advance study program in science and mathematics,* 1 year, William W. Cooley, director. Federal funds, $5,290.

HOPE COLLEGE, *A study of leadership in school age children,* 2 years, Robert F. DeHaan, director. Federal funds, $39,503.

LELAND STANFORD UNIVERSITY, *The development of mathematical concepts in children,* 3 years, Patrick Suppes, director. Federal funds, $55,325.

UNIVERSITY OF MIAMI (Florida), *A*

study of the etiology and development of the creative personality, 1 year, 6 months, John E. Drevdahl, director. Federal funds, $22,139.

UNIVERSITY OF MINNESOTA, *Role of evaluation in creative thinking*, 1 year, 3 months, Paul E. Torrance, director. Federal funds, $25,175.

UTAH STATE UNIVERSITY, *An evaluation of ability grouping*, 3 years, 7 months, Walter R. Borg, director. Federal funds, $55,970.

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Staffing

UNIVERSITY OF CALIFORNIA, Los Angeles, *Prediction of teacher performance and emotional stability*, 1 year, 7 months, Williams H. Lucio, director. Federal funds, $17,772.

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UNIVERSITY OF MINNESOTA, *A study of the factors operative in the selective retention of students in teacher education, Part II*, 4 years, Walter W. Cook, director. Federal funds, $102,472.

Teaching methods

UNIVERSITY OF COLORADO, *Self-directed study: An experiment in higher education at the University of Colorado*, 1 year, Howard E. Gruber, director. Federal funds, $18,688.

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WASHINGTON UNIVERSITY, *Systematic observation of verbal interaction as a method of comparing mathematics lessons*, 1 year, 6 months, Muriel J. Wright, director. Federal funds, $15,204.

Testing and test development

UNIVERSITY OF ILLINOIS, *Effects on use of tests by teachers trained in a summer institute*, 1 year, 7 months, J. Thomas Hastings, director. Federal funds, $30,828.

THE UNIVERSITY OF TEXAS, *The preparation and evaluation of inter-language testing materials*, 1 year, H. T. Manuel, director. Federal funds, $82,685.

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STATISTICS OF BONDS SOLD FOR PUBLIC SCHOOL PURPOSES, OCTOBER 1953–JUNE 1959. 1959. 15 pp. 20 cents. (OE–22001.)

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TEACHERS OF CHILDREN WHO ARE HARD OF HEARING, A REPORT BASED ON FINDINGS FROM THE STUDY, QUALIFICATION AND PREPARATION OF TEACHERS OF EXCEPTIONAL CHILDREN, by *Romaine P. Mackie* and *Don A. Harrington.* 1959. 70 pp. 35 cents. (Bul. 1959, No. 24.)

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FINANCIAL STATISTICS OF INSTITUTIONS OF HIGHER EDUCATION: STATISTICAL SUMMARY, 1955–56, by *Herbert S. Conrad, Mabel C. Rice,* and *George Lind.* May 1959. 11 pp. (Cir. No. 571, Rev. August 1959.)

INTERNATIONAL TEACHER DEVELOPMENT PROGRAM 1958–59, ANNUAL REPORT TO THE INTERNATIONAL EDUCATIONAL EXCHANGE SERVICE, U.S. DEPARTMENT OF STATE. 1959. 79 pp. (OE–14003.)

THE NATIONAL DEFENSE COUNSELING AND GUIDANCE TRAINING INSTITUTES PROGRAM, BASIC FACTS. 9 pp. (OE–25002.)

PROFESSIONALIZATION OF EDUCATIONAL ADMINISTRATION, by *Fred F. Beach.* Reprint from *School Life,* October 1959. 4 pp. (OE–23004.)

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YOUNG FARMER EDUCATION AS VIEWED BY SCHOOL SUPERINTENDENTS AND PRINCIPALS AND TEACHER TRAINERS AND SUPERVISORS OF AGRICULTURAL EDUCATION, A PROGRESS REPORT OF THE NATIONAL YOUNG FARMER STUDY, by *V. R. Cardozier* and the *Committee on Research in Agricultural Education, American Vocational Association.* June 1959. 52 pp. (OE–81000.)

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